



EUROPEAN
REGIONAL
DEVELOPMENT
FUND



WITH FINANCIAL
SUPPORT OF THE
RUSSIAN
FEDERATION

Interreg BSR OSIRIS

PROJECT PERIOD 4

GA 3.1 Regional Maps of Silver Knowledge Management Process

REPORT

GA 3.1 Leader: **Häme University of Applied Sciences**
FINLAND



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1. INTRODUCTION – GA3.1 Summary and Output

Summary

The GA 3.1 was conducted to realise a knowledge mapping process in the project regions and countries. Knowledge maps are useful tools for locating sources of knowledge, its characteristics, its classification and its usage. Regions capacity to detect their knowledge assets influences their ability to innovate and enhance growth opportunities.

Knowledge mapping was made in each project region and country. LP was the coordinator of this GA and PP3, PP6, PP8, PP12 and PP11 were the partners that implemented the knowledge mapping process in their regions. LP organised a virtual workshop with PP3, PP6, PP8, PP12 and PP11 in order to schedule the organization of knowledge panels meetings and to design the working tools that will be used for realising knowledge maps (collecting data tool – survey, focus groups - data analysis methodology and map template).

In each project region, 2 knowledge panels meetings were organised. Knowledge panel meetings were gathered together representatives of quadruple helix innovation actors such as RIS 3 authorities, local authorities, national authorities, companies, research organizations, and senior citizens associations.

After knowledge panels meetings ended, experts of LP, PP3, PP6, PP8, PP12 and PP11 developed knowledge maps for each project region and country:

- 3 regional knowledge maps (Kanta-Häme Region/Finland), St. Petersburg/Russia) and Central Jutland/Denmark)
- 3 national knowledge maps (Lithuania, Latvia and Estonia).

Knowledge mapping process was documented and knowledge panels meeting reports were elaborated.

Output

Knowledge maps are an important output that will be used for feeding up the design of knowledge management model – component of the Smart Silver Framework – a pilot transnational cooperation model. Knowledge maps are an interactive and open system for dialogue that defines, organises and builds on the intuitive, structured and procedural knowledge used to explore and solve problems. Knowledge maps are a key output that will support the project teamwork on designing a flexible and operational knowledge management model in GA3.2. Key purposes of knowledge maps:

- (1) To generate knowledge and ideas
- (2) To visualize complex structure
- (3) To communicate complex knowledge and ideas
- (4) To aid individual, organizational, regional and interregional learning by explicitly integrating new and old knowledge
- (5) To assess understanding or diagnose misunderstanding
- (6) To easily access to relevant knowledge

- (7) To assess transnational cooperation pillars based on the complementarities, gaps and missing capabilities between regions knowledge configurations, in this way strategic cooperation actions can be planned at interregional level
- (8) To detect the knowledge flows at regional and national level in project area.

2. METHODOLOGY – Work Plan

Methodology for organising the Knowledge Panel Meetings 1 & 2

Aims of the knowledge panel meetings

- **Knowledge Panel Meeting 1** will focus on identifying and visualizing sources, location, flows and storage of knowledge within open innovation ecosystem (related to the RIS3 priority to be tackled in each country) that fosters the emergence of ideas, concepts and scenarios leading to innovative solutions and enhance their market uptake.

Trigger question: Based on your values and personal experience, how do you describe the ‘best’ way to manage knowledge in an open innovation ecosystem?

Output: Collecting as much information as possible for the development of a knowledge management model, as well as to formulate recommendations for possible intervention solutions.

List of questions for the Panel Meeting 1 are proposed in Appendix 1. Most of the answers to these questions should come after the construction of a group cognitive map, meaning that the model building process should be as natural as possible, and the questions presented to the participants should not influence/conditionate the inputs provided during the application of the SODA methodology.

- **Knowledge Panel Meeting 2** will focus on the role of senior citizen/end-users in the flow of knowledge / knowledge transfer within the regional open innovation ecosystem in the context related to each partner’s RIS3 priority.

Trigger question: Based on your values and personal experience, in what ways senior citizens/end-users can enhance knowledge sharing/transfer/management within an open innovation ecosystem?

Output: Recommendations and possible solutions to the knowledge management model. In addition, this panel meeting will identify senior citizens’ willingness to engage as actors and co-designers in open innovation ecosystems in the context of each partner’s RIS3 priority.

The general aim of the Knowledge Panel Meeting 2 is to increase understanding of the active role of senior citizen/end-users and relevant stakeholders when an innovation is developed in an open ecosystem, and where a democratic and distributed form of creative and hands-on problem solving takes place.

Some possible questions for the 2nd panel meeting are listed in Appendix 1. Again, most of the answers to these questions should come after the construction of a group cognitive map. One should bear in mind that the model building process should be as natural as possible, and the questions presented to the participants should not influence their inputs during the application of the SODA methodology.

Based on this knowledge mapping process, the final aim is to create a Knowledge Management Model.

The experts to be invited to the knowledge panel meetings

Participants of the knowledge panel meetings should have diverse sources of expertise. They should represent the key participating organizations in the open innovation ecosystem related to the RIS3 priority. It is recommended to invite 1-2 senior citizens who possibly represent senior organizations. Age and gender diversification is also advised.

The group should have between 6 and 10 key individuals. Less than 5 participants compromises the model validity. These key experts in every participating country shall represent the RIS3 priority specified actors of 6-10 organizations in the open innovation ecosystem.

Preferred timing and duration of the panel meetings

The scheduled timing for WP3.1 knowledge panel meeting is November-December 2019. Depending on the objective of the collective cognitive map, each group session requires on average 4 hours of group work. Each session should be divided in three different stages: (1) initial brainstorming; (2) clustering of ideas; and (3) analysis of cause-and-effect relationships between concepts/ideas. After the construction of the initial cognitive structure using Decision Explorer software, the group cognitive map must be collectively validated by the group.

Information to be provided to the panel members before the Panel Meeting 1 toward successful panel meetings and mutual understanding

Definitions of the key concepts, e.g.:

- RIS3 priority (Research & Innovation Smart Specialization Strategy). The Communication “Regional Policy contributing to smart growth in Europe 2020” (2011) by the European Commission requires policy makers to consider how the different aspects of smart, sustainable and inclusive growth are interrelated. Integrated smart specialization strategies respond to complex development challenges by adapting the policy to the regional context. RIS3 priority supports the creation of knowledge-based jobs and growth not only in leading research and innovation (R&I) activity centers (hubs) but also in less developed and rural regions.
- Ecosystem, a group of interconnected elements, such as organizations and individuals (= innovation actors).
- Open innovation ecosystem. When the open innovation system is applied, the organizations in the ecosystem can use external resources such as technology, expertise and skills and at the same time make available their own innovations to other organizations. Open innovation is a more distributed, more participatory, more decentralized approach to innovation, based on the observed fact that useful knowledge today is widely distributed, and no company, no matter how capable or how big, could innovate effectively on its own (Chesbrough, 2003).
- Knowledge mapping. Knowledge maps are useful tools for locating sources of knowledge, its characteristics, its classification and its usage. Regions capacity to detect their knowledge assets influences their ability to innovate and enhance growth opportunities. Knowledge maps are powerful tools to make an inventory of a system critical knowledge and pinpoint areas that may be at risk.
- Knowledge management model (KMM) is the main instrument for handling the connection between RIS3 approach, industry and knowledge assets. The KMM synthesizes and integrates knowledge at the regional level to create a common process for exploiting silver economy growth opportunities. The KMM is a useful instrument for managing a complete evolution cycle of the innovation process,

making full benefit of the research knowledge and transforming it into products and services with high growth potential and high user adaptation and satisfaction.

- Tacit knowledge corresponds to each person's capability for engaging in creative processes and thereby perceiving and registering reality in unique ways and producing their own intellectual and physical experiences. (Source: Vaz de Almeida, Ferreira & Ferreira, 2019).
- Implicit knowledge includes the transfer of knowledge taking place through formal mechanisms such as publications, instruction manuals, software, patents, informal discussions, collaborative research and people's movements (Source: Vaz de Almeida, Ferreira & Ferreira, 2019).

Background Questions and permission to use materials obtained at the Panel Meetings 1 & 2

- Please remember to ask each panel member the **background questions** and ask for the **permission to use the materials obtained** at the Panel meetings 1 & 2 for possible future research purposes.
- HAMK will provide the forms for background questions and the permission separately and add them to Teams files.

Additional Questions for the Panel Meeting 1

Based on your personal values and professional experience, please answer:

(1) Benefits

- What motivates you/your organization to operate in an open innovation ecosystem?
- What kinds of benefits are you/your organization searching in an open innovation ecosystem?

(2) Knowledge related to innovation activities

- What kind of knowledge do you/your organization need to operate in an innovation ecosystem?
- Where is the knowledge located?
- Which format does the explicit knowledge related to innovation activities have? From where/whom can the explicit knowledge be found?
- Which format does the tacit knowledge related to innovation activities have? From where/whom can the tacit knowledge be found?
- In which format and location, the knowledge related to innovation activities should be stored?
- How knowledge flows between innovation actors currently? How should knowledge flow be improved in an open innovation ecosystem?
- What kinds of actions would you/your organization prefer to foster the knowledge flow in an open innovation ecosystem?

(3) Actors involved

- Who are the key players in an open innovation ecosystem?
- Who creates the knowledge related to innovation activities toward the RIS3 priority (in Finland: Smart living environment)? Who owns that knowledge?
- Who currently uses the knowledge within open innovation ecosystem?
- Who is not currently using the knowledge but might do so they had easy access?

(4) Issues and limitations

- What are the conditions that may support availability and easy access to relevant knowledge within open innovation ecosystem?
- What are the major drivers in your organization to share knowledge with other actors of open innovation ecosystem?
- What are the major barriers in your organization to share knowledge with other actors of open innovation ecosystem?

- What kind of role personal relationships play in knowledge sharing within open innovation ecosystem?
- What kind of inter-organizational relationships enhance knowledge sharing within open innovation ecosystem?

Additional Questions for the Panel Meeting 2

- What resources senior citizens can offer to other organizations to enhance knowledge sharing and knowledge management in an open innovation ecosystem?
- What would be the role for senior citizens and their organizations in an open innovation ecosystem?
- What kinds of activities/tasks senior citizens could accomplish to enhance knowledge management in an open innovation ecosystem?
- What intervention strategies do you recommend for a deeper and effective participation of senior citizens in an open innovation ecosystem?
- What practical initiatives do you recommend to increase the participatory role of senior citizens in an open innovation ecosystem?

Possibly some of the questions in the Knowledge Panel Meeting 1 could be asked in the Panel Meeting 2.

GA Output

Each responsible partner will apply as consistent and comparable methodology with SODA as possible on target groups representatives for a 5-step process: 1) Acquiring data; 2) Manipulate data; 3) Store data; 4) Process data; and 5) Visualize data.

After the two knowledge panel meetings end, expert teams of each responsible partner will develop Knowledge Maps for each project region/country. Knowledge mapping process will be documented and six (6) reports of the knowledge panel meeting (from 6 regions) will be elaborated. Knowledge maps are an important output that will be used for feeding up the design of knowledge management model – component of the Smart Silver Framework – which is a pilot transnational cooperation model.

In GA 3.1, knowledge maps are a key output that will support the project teamwork on designing a flexible and operational knowledge management model in WP3.2. Knowledge maps as project output will comply with open-access principles, meaning that large public will have access to it. Output will be published on project website with free and open access.

3. RESULTS – Regional Maps

3.1 Finland

RIS3 Priority in Finland

Living environments which foster wellbeing – Age-Friendly Smart Living Environment

Summary of Knowledge Panel Meetings 1 & 2

Panel Meeting 1

Place and date

- Häme University of Applied Sciences (HAMK), Hämeenlinna
- December 13, 2019

Expert panel characterization

N	Name of the expert	Gender	Name of the respective organization	Current position in the organization
1	Kimmo Vänni	M	HAMK	Principal Research Scientist
2	Marko Mälly	M	Regional Council of Häme	Development manager
3	Minna Takala	F	Regional Council of Häme	Regional Development Specialist
4	Matti Nieminen	M	Vauraus Suomi Ltd.	Director
5	Anne Ranta-Eskola	F	Arcade Ltd.	Managing Director
6	Katariina Välikangas	F	HAMK	Senior Lecturer
7	Janne Yrjölä	M	City of Riihimäki	Seniors home care, Manager
8	Pentti Repo	M	Ikäraati - seniors association	Chairman of Ikäraati association
	Moderator			
9	Fernando Ferreira	M	ISCTE Business School	Professor
	Assistants			
10	Pia Tamminen	F	HAMK	Principal Research Scientist
11	Marina Weck	F	HAMK	Research Manager

Focus area

Panel Meeting 1: Knowledge Management in the open innovation ecosystem for building an Age-friendly Smart Living Environment

Methodology used

Both panel meetings were process-oriented by nature and lasted for four hours each. The strategic options development and analysis (SODA) approach, created by Ackermann and Eden (2001), was used to structure the decision problem. The method helped to ensure that each participating expert had a clear understanding of the problem's context and overall structure (Belton and Stewart, 2002).

Knowledge Panel Meeting I focused primarily on the issues related to KM among innovation actors within the regional open innovation ecosystem. The information obtained during this panel meeting was used to create a collective cognitive map. Cognitive mapping is a well-established problem-structuring method (Eden, 2004). Cognitive maps seek to represent researched subjects through cause-and-effect relationships (Ackermann and Eden, 2001). To produce a collective cognitive map, the following trigger question was introduced.

Trigger question

Based on your values and personal experience, how do you describe the ‘best’ way to manage knowledge in an open innovation ecosystem?

The eight panel members involved in this meeting were challenged to think about conditions enabling knowledge collaboration and sharing as well as benefits and barriers for knowledge sharing. With the help of the “post-its technique” (Eden and Ackermann, 2001a, 2001b), the panel members generated and wrote down 331 ideas or determinants of Knowledge Collaboration and Knowledge Sharing within the open innovation ecosystem.

Panel Meeting 2

Place and Date of the Panel Meeting 2

- Häme University of Applied Sciences (HAMK), Hämeenlinna.
- December 16, 2019.

Expert panel characterization

N	Name of the expert	Gender	Name of the respective organization	Current position in the organization
1	Kimmo Vänni	M	HAMK	Principal Research Scientist
2	Marko Mälly	M	Regional Council of Häme	Development manager
3	Minna Takala	F	Regional Council of Häme	Regional Development Specialist
4	Matti Nieminen	M	Vauraus Suomi Ltd.	Director
5	Anne Ranta-Eskola	F	Arcade Ltd.	Managing Director
6	Katariina Välikangas	F	HAMK	Senior Lecturer
7	Janne Yrjölä	M	City of Riihimäki	Seniors home care, Manager
8	Pentti Repo	M	Ikäraati - seniors association	Chairman of Ikäraati association
	Moderator			
9	Fernando Ferreira	M	ISCTE Business School	Professor
	Assistants			
10	Pia Tamminen	F	HAMK	Principal Research Scientist
11	Marina Weck	F	HAMK	Research Manager

Focus area

Panel Meeting 2: The role of senior citizen/end-users in the flow of knowledge transfer within the open innovation ecosystem for building an Age-friendly Smart Living Environment

Methodology used

Knowledge Panel Meeting II was dedicated to the validation of the collective cognitive map and convert it into a fuzzy cognitive map (FCM) to quantify the intensity of cause-and-effect relationships and show the real

dynamics of the decision problem at hand (Carvalho, 2013). Fuzzy cognitive mapping “is a process that extracts [...] knowledge from [...] participants in order to describe and investigate the problem’s model and behavior” (Misthos et al., 2017, p. 62). Similarly to collective cognitive maps, FCMs exhibit concepts – or objectives, events, and actions – by nodes and the cause-and-effect relationships between them by arrows (e.g. Stylios and Groumpos, 1998).

The panel meeting was held with the same experts participating in the first meeting. At the beginning of the second panel meeting, the structure was discussed with and among the panel members for validation. The experts were asked to quantify the cause-and-effect relationships identified in the previous meeting by estimating intervals according to the type of relationship (i.e. positive or negative) and using an interval from –1 to 1 (Ferreira, 2016). Having quantified all cause-and-effect relationships, the Pajek software package (www.mrvar.fdv.uni-lj.si/pajek) was used to create the final FCM of determinants of KC and KS within the regional open innovation ecosystem. Figure 2 shows a simplified version of the final FCM. Rotations leading to other angles of the cognitive structure are possible using Pajek (a full version including labels is also available upon request).

Trigger question

Based on your values and personal experience, in what ways senior citizens/end-users can enhance knowledge sharing/transfer/management within an open innovation ecosystem?

Results of Panel Meetings 1 & 2

Knowledge structure/Group cognitive map created

Once the first panel meeting was closed, a collective cognitive map was developed using the Decision Explorer software (www.banxia.com). Figure 1 introduces the map, which shows only the collective cognitive structure due to size limitations in this paper (a larger version is available upon request). The arrows in the structure represent cause-and-effect relationships between concepts, thus helping to visualise and understand the research phenomenon.

Summary of findings

The initial findings enabled researchers to understand the ‘best’ way to manage knowledge within the open innovation ecosystem, which connects innovation actors to screen and accelerate the uptake of innovative products and services towards building age-friendly SLEs. The comprehensive cognitive structure or conceptual framework underlying KM within the open innovation ecosystem is introduced in Figure 1 using cognitive mapping as a methodological technique. This framework was analysed relating its components to the existing literature on KC and KS. It allowed an understanding of how closely the conclusions made in the present study corroborate the findings of the earlier research and contribute to the KM concept within the context of open innovation ecosystem emphasising the importance of KC and KS.

Conditions supporting knowledge collaboration and knowledge sharing

Experts participated in the present study and relying on their own perceptions, identified factors or conditions having impact on KM within the regional open innovation ecosystem. They organised them in six central clusters or the key determinants with the most significant impact. The impact of all identified factors was estimated by calculating the degrees of centrality, and the most significant determinants are presented in the Table 1. The determinant “improvement actions and initiatives” has the highest centrality as it is directly related to the conditions supporting both KC and KS. It covers 93 identified factors such as “working together

with universities”, “inviting students to participate”, “publishing to share knowledge”, “clear aims and goals for information needs”, “listening to elderly people”, “sharing experiences of success”, “meetings with end-users”, “sharing problems”, “informal discussions”, “storytelling”, “idea competitions” etc. The determinants “general skills, capabilities and competences” (in total 61 factors) followed by “motives and benefits” (in total 59 factors) were identified as having a considerable impact on KC and KS as well. This finding corroborates important preconditions acknowledged in the prior research (e.g. Castells, 2007; Faraj, Jarvenpää and Majchrzak, 2011; Rifkin, 2014; Tamminen, 2016). The external resources that organisations or innovation actors can use in the open innovation ecosystem are represented by the identified determinant “resources and knowledge-based activities” relating 33 factors. To build the comprehensive cognitive structure (see Figure 1) fundamental to the understanding of KM within the open innovation ecosystem, in total 31 factors relating to the stakeholders of the ecosystem were identified and covered by the determinant “involved innovation actors”. Additionally, the revealed “barriers and limitations” (in total 38 factors) were included as an important determinant, which has a noteworthy impact on the KM.

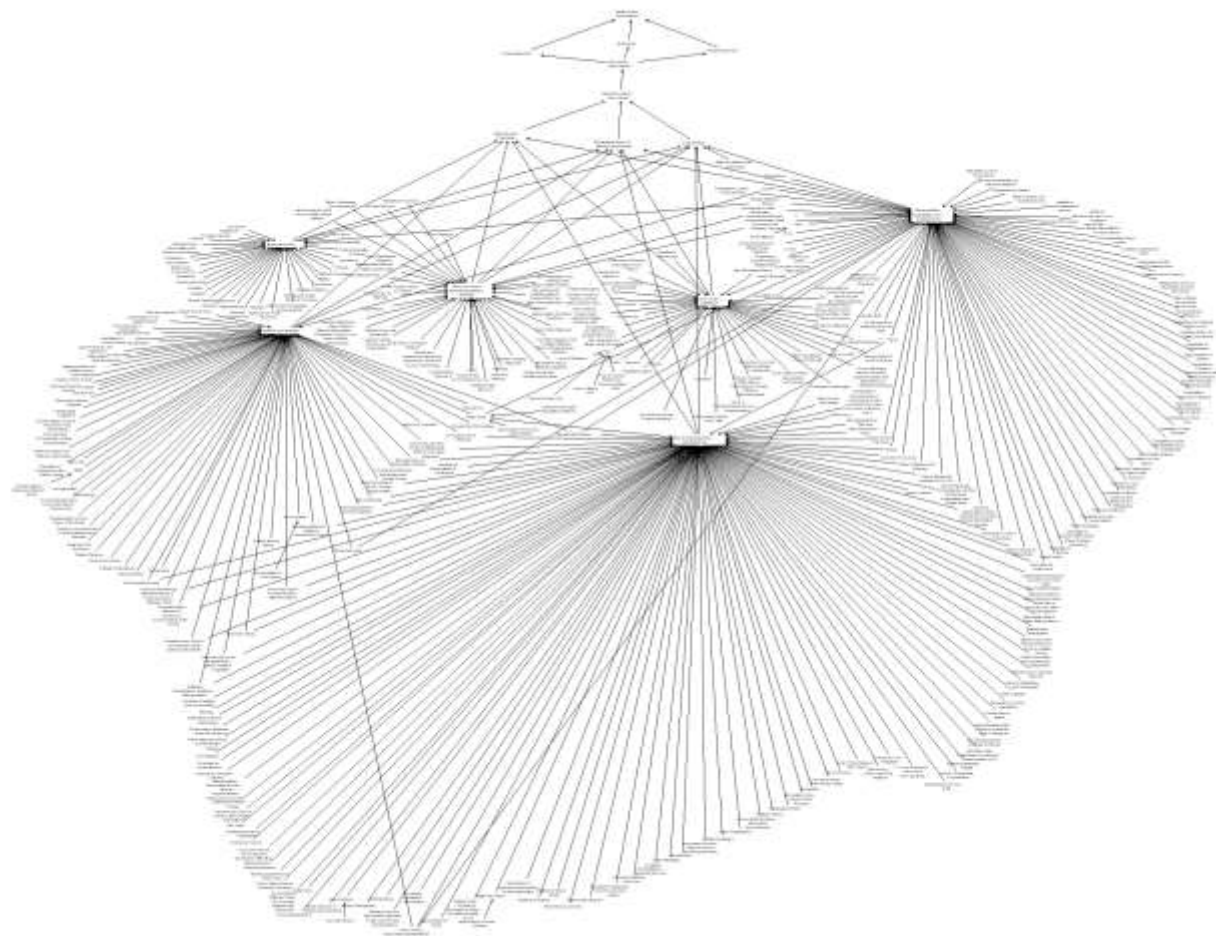


Figure 1 Collective cognitive map

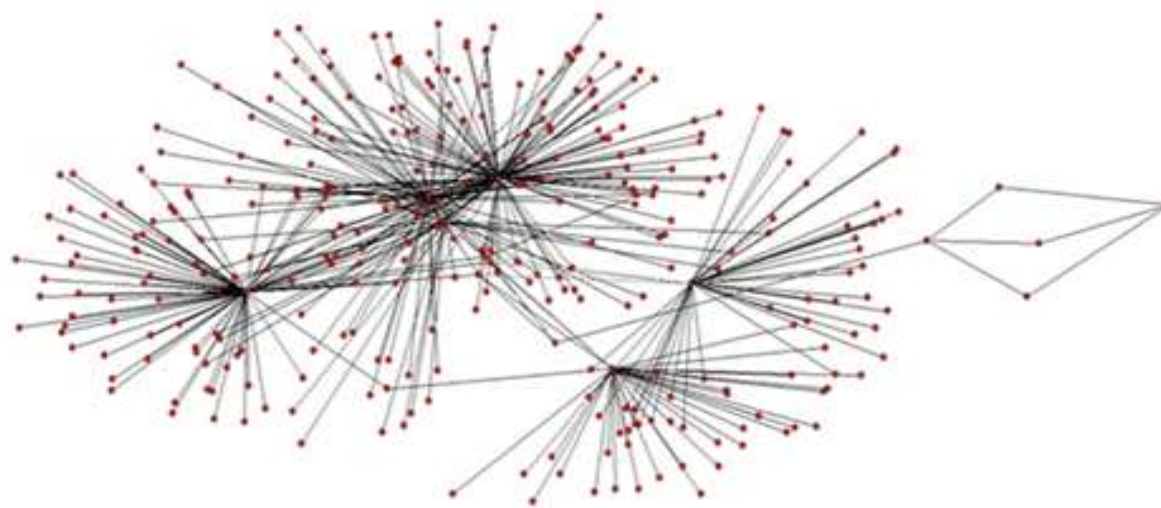


Figure 2 Fuzzy cognitive map

The central clusters covering conditions that have the most significant impact on KM are directly connected with the strategic criteria representing the integral parts of KC and KS concepts within the open innovation ecosystem. In the cognitive structure, these criteria are “open access principles”, “sustainable ways to manage knowledge”, “cooperation”, encompassed by “open innovation ecosystem”. Finally, among strategic criteria introduced by the expert group the criteria such as “comfortable life”, “active life”, “independent life” and “innovative environment” correspond to characteristics of the age-friendly SLE, which is the common target of innovative actors within open innovation ecosystem or SSL in the study at hand. These strategic criteria are placed at the top of the structure respectively, the latter ones are above all others.

Seniors’ contribution to knowledge collaboration and knowledge sharing

Based on the results of both study phases, the researchers were able to realise the great willingness of senior citizens to be engaged in the KM process within the regional open innovation ecosystem for building age-friendly SLEs together with other stakeholders. Moreover, the role of seniors in KC and KS within the ecosystem seems to be of critical importance, as they have accumulated both personal and professional skills and experience. They represent eager actors in public discussions and have more time at their disposal for being engaged in different innovation development activities. In total, 21 well-focused suggestions on how senior citizens can contribute to the KC and KS within the open innovation ecosystem in practice were introduced by experts in the second phase of the study. The most noteworthy suggestions include for the following examples: “joining in an open discussion group”, “sharing ideas over an open innovation platform”, “sharing own knowledge in social media”, “allowing access to their own information (e.g. medical data)”, “participating in development activities”, “peer-to-peer support when possible”, “joining the discussion groups of seniors’ associations”, “participating in idea exchange meetings with seniors” and other very practical recommendations.

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3.2 Latvia

RIS3 Priority in Latvia

ICT, biomedicine, medical technologies

Summary of Knowledge Panel Meetings 1 & 2

Panel Meeting 1

Place and date

- Rīgas Ekonomikas augstskola (Stockholm School of Economics in Riga), Riga.
- December 10, 2019.

Expert panel characterization

N	Name of the expert	Name of the respective organization	Gender	Current position in the organization	Reasoning for being selected to the panel
1	Juris Asars	RISEBA university	male	Researcher	Expert in urban / housing development
2	Dr. Iveta Cīrule	"Project Net" ("Senior University") association	female	Chairperson of the Board	Moderator involved in elderly / retired persons lifelong learning activities
3	Dr. Igors Graurs	Riga Technical University	male	Project researcher	Scholar, expert, active senior
4	Artis Gustovskis	"Senioru skola" association	male	Member of the Board	Involved in elderly/retired persons lifelong learning activities, Expert of local governance
5	Andris Jaunsleinis	Latvian Association of Local Governments	male	Project lead	Expert of local governance / administration, active senior
6	Jānis Miezeris	n/a	male	n/a	Socially / Economically active senior, ICT expert
7	Dr. Aija Sannikova	Latvian Association of the deaf	female	Project manager	Scholar, expert working with disabled people
8	Rimis Vaitkus	'Connect Latvia' association	male	Member	Socially / Economically active senior
9	Viktors Feofanovs	Riga Technical University	male	Docent	Smart Silver Framework expert
10	Egils Rupeks	Riga Technical University	male	Project event coordinator	Member of RTU OSIRIS project team
11	Aleksandrs Gamalejevs	Riga Technical University	male	Project coordinator, assistant researcher	Member of RTU OSIRIS project team
12	Diana Tumene	Riga Technical University	female	Project administrator	Member of RTU OSIRIS project team

Focus area

Panel Meeting 1: Knowledge Management in the open innovation ecosystem of the creation of supporting environment for elderly people using ICT and medical (care) technologies

Methodology used

The participants of 1st Panel Meeting, representing all triple-helix sectors of economy, some of them already retired – former leading figures and experts in their respective fields, were drawn to focus on identifying, visualizing sources, location, flows and storage of knowledge within open innovation ecosystem (related to Latvia's RIS3 priority – ICT and medical technologies) in order to discover fresh ideas, concepts and scenarios leading to innovative solutions and enhance their market uptake.

Given that the expert team members involved in this meeting were intended to be the nucleus for follow-up expert group meetings and the realization of project ideas even after the project completion, we have chosen from the beginning people who could serve as experts and follow-up organizers. Based on these considerations, we strive to inform them as much as possible about the aims and progress of the project, and to motivate them as much as possible to support and promote the project in the organizations they represent. We believe this to be successful, as a lot of new ideas and suggestions to bring new players to the project came from the very first meeting.

The methodological guidelines developed by the Project Management helped a lot in organizing the work properly. In the course of the meeting, we have sought to answer all the questions raised and to gather the information obtained for use in future meetings of experts.

Strategic Options Development and Analysis (SODA), cognitive mapping and nominal group techniques.

Trigger question

Based on your values and personal experience, how do you describe the 'best' way to manage knowledge in an open innovation ecosystem?

1st Panel's aim was to gather as much information as possible for the elaboration of a knowledge management model (KMM) and to put forward some suggestions for eventual intervention solutions.

The final outcome - creation of the group's Cognitive Map was started with a "trigger question" to each of the group members. While this question projects the overall objective of group's Cognitive Map hence the formulation of a trigger question was the key aspect in the entire process.

In that respect there were also additional questions asked among 1st Panel audience about any possible knowledge related to innovation activities, every possible actor involved, issues and limitations which may possibly arise. Group's members were also asked about their (former) experience of benefits gained while operating within open innovation ecosystem. The purpose was to try to collect as much information as possible from the Panel members, answer all the questions related to the topic of the Panel meeting. At that stage there were nearly hundred ideas and proposals recorded.

Working from the first meeting of WP 3.1, it was considered that the information it is providing will serve as a basis for the development of the Cognitive Map to be created at the next WP 3.1 meeting in January 2020. Understanding the strategic goals and objectives of the project has helped to focus on key issues and successfully summarize key information from the meeting as a basis for further action.

At the same time, it was clear that in spite of the good theoretical information and references in the scientific literature on the SODA methodology and its practical application, we were not certain entirely how it could be

effectively applied in practice in this project. A valuable proposal came from HAMK partners to delegate our representatives to the WP 3.1 meeting in Finland held on 13.12.2020. Thanks to our participation in this event we have obtained lot of information necessary for the further organization of the project.

Panel Meeting 2

Place and Date of the Panel Meeting 2

- Riga Technical university (RTU), Riga.
- January 24, 2020.

Expert panel characterization

N	Name of the expert	Name of the respective organization	Gender	Current position in the organization	Reasoning for being selected to the panel
1	Dr. Iveta Cīrule	Association "Project Net", 'Senior university'	female	Chairperson	Moderator involved in elderly / retired persons lifelong learning activities
2	Dr. Igors Graurs	Riga Technical University	male	Project researcher	Scholar, expert, active senior
3	Artis Gustovskis	"Senioru skola" association	male	Member of the Board	Involved in elderly / retired persons lifelong learning activities, Expert of local governance
4	Jānis Kudiņš	University of Daugavpils	male	Vice Rector	Scholar, researcher working within silver economy focus
5	Andris Melnūdris	Latvian Information and communications Technology Association	male	Director General	ICT expert
6	Jānis Miezeris	senior	male	n/a	Socially / Economically active senior, ICT expert
7	Miervaldis Rozenbergs	Association "Connect Latvia"	male	member	Socially / Economically active senior
8	Dr. Aija Sannikova	Latvian Association of the deaf	female	Project manager	Scholar, expert working with disabled people
9	Dr. Arnis Sauka	Riga Technical University	male	Project researcher	Scholar, expert
10	Rimis Vaitkus	Association "Connect Latvia"	male	member	Socially / Economically active senior
11	Viktors Feofanovs	Riga Technical University	male	Docent	Smart Silver Framework expert
12	Egils Rupeks	Riga Technical University	male	Project event coordinator	Member of RTU OSIRIS project team
13	Aleksandrs Gamalejevs	Riga Technical University	male	Project coordinator, assistant resercher	Member of RTU OSIRIS project team
14	Diana Tumene	Riga Technical University	female	Project administrator	Member of RTU OSIRIS project team

Focus area

Panel Meeting 2: *The role of senior citizen/end-users in the flow of knowledge transfer within the open innovation ecosystem for creation of supporting environment for elderly people using ICT and medical (care) technologies*

The participants of 2nd Panel Meeting represented all triple-helix sectors of economy, a number of them are retired and were former leading figures and experts in their respective fields.

Participants attention was drawn to focus on the role of senior citizen/end-users in the flow of knowledge / knowledge transfer within the national open innovation ecosystem in the context related to Latvia's RIS3 priority – ICT and medical technologies.

Methodology used

Strategic Options Development and Analysis (SODA), cognitive mapping and nominal group techniques.

Trigger question

Based on your values and personal experience, in what ways senior citizens/end-users can enhance knowledge sharing/transfer/management within an open innovation ecosystem?

2nd Panel Meeting purpose was to increase proper understanding of the active role of senior citizen/end-users and relevant stakeholders when an innovation is developed in an open ecosystem, and where a democratic and distributed form of creative and hands-on problem solving takes place. The facilitator (moderator) constantly monitored the process for the knowledge management modelling trying to keep it as natural as possible, and the questions presented to the participants helped them provide inputs during the application of the SODA methodology.

A handful of additional questions were asked amongst 2nd Panel participants regarding their willingness to share their personal and/or organizational resources e.g. time, knowledge, other tangible and intangible assets, etc. in an open innovation ecosystem. Opinions were gathered about senior citizen motivation and benefits they were looking for when dealing with an open innovation ecosystem as well as about any possible knowledge related to innovation activities, every possible actor involved, issues and limitations which may possibly arise.

Thanks to the knowledge obtained during the visit to HAMK University and the opportunity to meet Mr Fernando Ferreira, PhD from ISCTE Business School, Academy Institute of Lisbon, we have understood the basics of SODA methodology application and how it might be used in the development of the Cognitive Map in our project. A deeper understanding of this knowledge and methodologies allowed us to properly organize and structure the second Expert Panel meeting of WP 3.1

As the first meeting provided the experts with the basic information needed to create and properly structure knowledge clusters, the second meeting was dedicated to this task. Initially, the title of the map itself was developed, based on Latvia's RIS3 priorities – *Supporting Environment for Silver Economy in Latvia through ICT and healthcare technologies*. We also based our clustering on the approach of HAMK colleagues, then explained to and adopted by our Expert Panel.

Results of Panel Meetings 1 & 2

Knowledge structure/Group cognitive map created

Supporting Silver Economy in Latvia through ICT and healthcare technologies

1. Participants of Silver Economy (SE) (39)

- 1.1 Seniors
- 1.2 Senior organizations
- 1.3 Ministry of Welfare (SEA)
- 1.4 Ministry of Health
- 1.5 Ministry of Economics (LIAA)
- 1.6 IZM
- 1.7 Municipalities and their organizations
- 1.8 Local town and village leaders and enthusiasts
- 1.9 Senior universities
- 1.10 Lifelong learning education institutions
- 1.11 Higher education institutions
- 1.12 Educational institutions
- 1.13 Medical and care institutions
- 1.14 Doctors
- 1.15 Entrepreneurs
- 1.16 Science and research institutions
- 1.17 EU and other fund administrations
- 1.18 Social entrepreneurship
- 1.19 Social workers
- 1.20 Non-governmental sector, NGOs
- 1.21 General Practitioners Association
- 1.22 ICT organizations and professionals
- 1.23 Pension funds
- 1.24 Planning regions
- 1.25 Pharmaceutical manufacturers, specialists and scientists
- 1.26 VARAM
- 1.27 Inventors and manufacturers of medical and care equipment
- 1.28 Nutritionists
- 1.29 Insurers
- 1.30 Physical culture organizers
- 1.31 Senior nurses
- 1.32 Professional organizations and associations
- 1.33 Trade unions
- 1.34 Charitable organizations
- 1.35 Diaspora
- 1.36 Latvian Inventors' Association
- 1.37 Designers
- 1.38 Architects
- 1.39 Builders

2. Reasons and expected benefits (27)

- 2.1 Increasing the country's sustainability and security
- 2.2 Providing better living conditions for seniors
- 2.3 Expansion of the workforce base
- 2.4 Reduction of social tensions
- 2.5 Improving health and increasing life expectancy
- 2.6 Increasing the viability of depressed regions
- 2.7 Relief for the social budget in local governments
- 2.8 Expanding the base of accurate taxpayers
- 2.9 Development of new and topical services for seniors

- 2.10 ICT skills for every senior
- 2.11 Socio-economic development in the regions
- 2.12 Cheap labor ready to work remotely
- 2.13 Increase in population activity
- 2.14 Increasing the purchasing power of local consumers
- 2.15 Ability and willingness to learn throughout life
- 2.16 Ability to provide the necessary advice and counseling
- 2.17 The desire to be more socially active and to integrate into public life
- 2.18 Opportunity to better present oneself in the labor market
- 2.19 Innovative and technological solutions
- 2.20 Ability to communicate with family members, medical staff, etc.
- 2.21 Ability to work more professionally in social networks
- 2.22 Increasing the social status and self-confidence of seniors
- 2.23 The courage to learn and not be afraid at any age
- 2.24 Balanced generational change
- 2.25 Increasing mutual understanding and tolerance
- 2.26 Opportunity to travel more, relax and buy better quality goods
- 2.27 Incentive for re-migration

3. Obstacles and barriers (20)

- 3.1 Disorder and lack of cooperation on senior issues
- 3.2 The government's attitude towards seniors as a non-priority social group
- 3.3 The low capacity and willingness of public authorities to promote SEs
- 3.4 General health and life expectancy of seniors
- 3.5 Lack of state support programs
- 3.6 Fear of seniors not being in demand in the labor market
- 3.7 Lack of ICT knowledge and skills of seniors
- 3.8 Lack of SE system and strategy at national level
- 3.9 Low purchasing power and financial dependence of seniors
- 3.10 Lack of state support for entrepreneurs on the involvement of seniors in work
- 3.11 Professional revaluation of seniors
- 3.12 Low motivation of seniors to improve their life and health
- 3.13 Entrepreneurs' inability to see seniors as a full-fledged workforce
- 3.14 Low self-esteem of seniors
- 3.15 Failure and incompatibility of senior organizations
- 3.16 Low level and lack of social care centers
- 3.17 Inadequacy of infrastructure and accessibility of the environment for seniors
- 3.18 Entrepreneurs' fears that seniors may hinder young people's career development
- 3.19 The problem of senior housing
- 3.20 Lack of information for seniorsLack of state support for entrepreneurs on senior employment

4. Achievable goals and tasks for their implementation (45)

- 4.1 Legislative changes to stimulate SEs
- 4.2 SE strategy development
- 4.3 State and local government support measures
- 4.4 Intergenerational communication and the promotion of respectful relations
- 4.5 Promoting and promoting a healthy diet and lifestyle
- 4.6 Tax support measures for the involvement of seniors in the economy
- 4.7 Development of senior training programs and financial attraction for their implementation
- 4.8 Create an SE fund
- 4.9 State support for the development of health care technologies for the needs of seniors
- 4.10 Creation of databases for collecting information on jobs for seniors
- 4.11 Establishment of financial instruments to promote SEs
- 4.12 Establishment of the Smart Silver Laboratory (SSL)
- 4.13 Collecting and disseminating information on seniors as a workforce
- 4.14 Active involvement of research organizations in the SE
- 4.15 Activation of NGOs in the field of SE
- 4.16 Determining the responsible state institution for SE development in Latvia

- 4.17 Show the public successful examples of SE experience
- 4.18 Inclusion of SE issues in the NDP
- 4.19 Promoting cooperation between SE stakeholders and organizations
- 4.20 Studies on the potential contribution of SEs to the economy
- 4.21 Development of SE Business Incubators and Re-starters
- 4.22 Promoting the transfer of senior knowledge and experience to the younger generation
- 4.23 Promoting SEs of creative ideas and attracting financial resources for their implementation
- 4.24 Wider publicity and promotion of SEs in the media
- 4.25 Attract grants and donations from entrepreneurs to promote SEs
- 4.26 Establishment of an online forum for the exchange of knowledge and experience
- 4.27 To develop the idea and possibilities of "Seniors-mentor"
- 4.28 Creating a positive public opinion about SEs
- 4.29 Mentoring "Senior - new employee"
- 4.30 Implement the SE pilot project in Kuldiga
- 4.31 Encourage the refurbishment and transfer of IT equipment to seniors
- 4.32 Promoting 'networking' of seniors to reduce feelings of exclusion
- 4.33 Information about the SE should be included in the curricula of educational establishments
- 4.34 Create blogs on social networks and YOUTUBE on SE news
- 4.35 Creation of the "Senior-Youth" platform
- 4.36 National and international HAKATONs on SE issues
- 4.37 Accelerate the development of common European standards
- 4.38 Organizing social campaigns to educate entrepreneurs in the field of SE
- 4.39 To continue the development of lifelong learning programs, to study existing programs
- 4.40 Courses for seniors should be organized in schools, municipalities and libraries
- 4.41 Promoting the establishment of senior interest clubs
- 4.42 Research and dissemination of information on jobs for seniors should be encouraged
- 4.43 Conferences on SE in Riga and regions
- 4.44 Development of board games and internet programs for seniors
- 4.45 Transport "Give young people a place for a parent"
- 5. Resources required for the development of SE (25)**
- 5.1 EU financial and other material resources
- 5.2 Public funding for SE research and experience projects
- 5.3 Tax credits for SE companies
- 5.4 Local government support and funding
- 5.5 State and municipal grants and subsidies
- 5.6 Identification and supply of senior human resources
- 5.7 State support programs for the promotion of senior entrepreneurship
- 5.8 Development of PPP models
- 5.9 Identification of senior interests and creation of their implementation networks
- 5.10 State and local government funding for the development and implementation of senior training projects
- 5.11 Changing banking policy in funding for seniors
- 5.12 Exploiting crowd funding opportunities
- 5.13 SEA programs
- 5.14 Free training courses for seniors in a business organization
- 5.15 Identification and mobilization of all EU and other funds available to SEs
- 5.16 Involvement of TV, radio and other media in the promotion of SEs
- 5.17 Knowledge, skills, competences in the field of SE
- 5.18 ALTUM specialization in work with seniors
- 5.19 Redistribution of taxes on working pensioners in favor of SEs
- 5.20 Pension funds
- 5.21 Allocation of funds from the state budget for the improvement and maintenance of the health condition of seniors
- 5.22 Provision of educational premises, infrastructure, teachers and researchers for SE projects
- 5.23 Information on seniors from the CSB and other state organizations
- 5.24 Identifying the common interests of different players and building common platforms in SEs
- 5.25 Charitable foundations

Findings

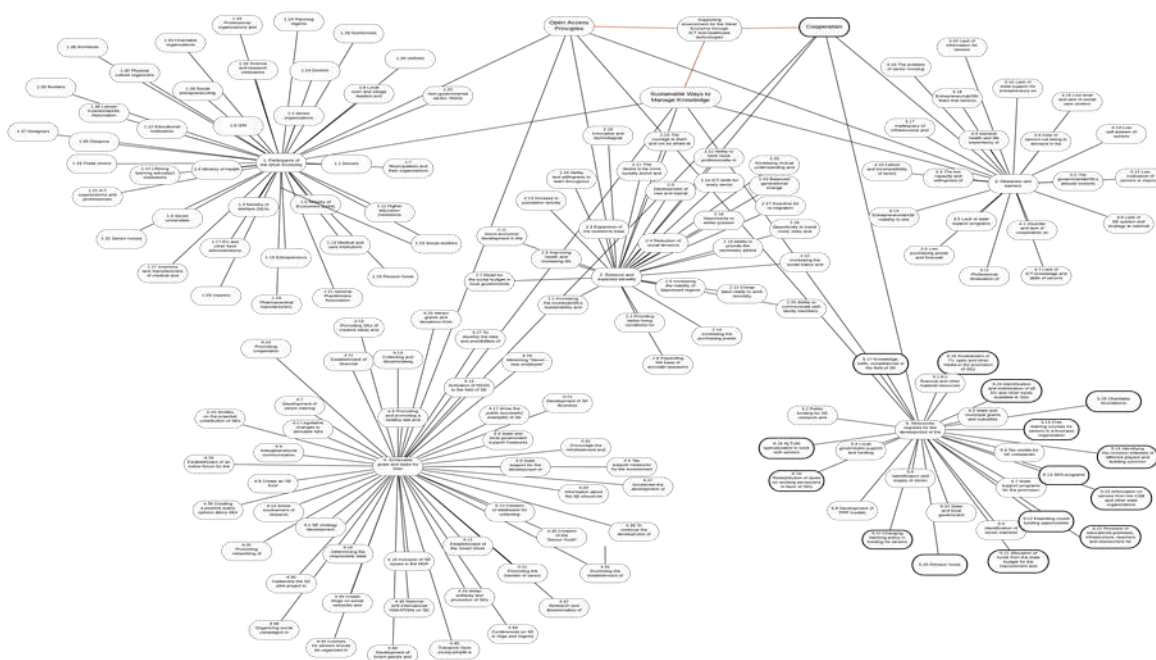
We have obtained the necessary content information that was needed to create the Cognitive Map. At the same time visual form of the Cognitive Map was created. We are planning to further use Cognitive Map as a basis for the development of Knowledge Management Model.

Intervention strategies and actions

During both of these meetings, we have received answers to the key questions raised during the GA 3.1 Expert Panel meetings. These answers have been provided and validated by the experts who participated in those meetings and are compiled in Cognitive Map Clusters. At the same time, we are well aware that clusters ought to evolve. Every further project development may open up new horizons for us and will undoubtedly be complemented by additional information and positive examples as a result of our collaboration with project partners. Any changes and innovations will be discussed and agreed with our experts.

In our future work, we will use the research tools and methods developed during the GA 3.1 Expert Panel meetings with the aim of completing this work in the next stages of the project and preparing everything necessary to lay the foundations for the Silver economy infrastructure in our country. To this end, we are trying to continue expanding the geography of our project nationwide to include more and more players from all over Latvia. So last year we mainly involved project participants from Riga and Riga region, but in the autumn we also attracted specialists from other regions - Latgale and Zemgale. The forthcoming GA 3.2 Knowledge Management co-creation Workshops meetings will take place in Zemgale and Kurzeme, but during the fall 2020 there will be events in Vidzeme and other regions of Latvia. If the participants and supporters of the project would remain involved, one may surely note afterwards that the project gradually becomes a nationwide event.

Supporting Silver Economy through ICT and healthcare technologies



3.3 Lithuania

RIS3 Priority in Lithuania

- Health Technologies and Biotechnologies

Summary of Knowledge Panel Meetings 1 & 2

Panel Meeting 1

Place and date

- Lighthouse, Liepu str. 83, Klaipeda
- November 22, 2019

Expert panel characterization

N	Name of the expert	Name of the respective organization	Gender	Current position in the organization
1	Jolita Razumiene	Agency for Science, Innovation and Technology (MITA)	Female	Project manager
2	Jurate Grubliauskiene	Klaipeda City Public Health Bureau (Klaipėdos miesto visuomenės sveikatos biuras)	Female	Director
3	Lina Kisiele	Agency for Science, Innovation and Technology (MITA)	Female	Innovation manager, expert
4	Ingrida Tinfaviciene	Lithuanian Innovation Center (Lietuvos inovacijų centras)	Female	Project manager
5	Vaida Svidriene	Ltd. "IAMUS innovations"	Female	Executive Assistant of the Director
6	Vitalija Radiukiene	Ltd. "IAMUS innovations"	Female	Project manager
7	Egle Buivydaite	Budget institution Klaipeda City Social Support Center (Biudžetinė įstaiga Klaipėdos miesto socialinės paramos centras)	Female	Deputy Director for Social Affairs
8	Roze Perminiene	Klaipeda City Municipality Administration (Klaipėdos miesto savivaldybės administracija)	Female	Head of the Health Department
9	Nijole Galdikiene	Klaipeda State University of Applied Sciences (Klaipėdos valstybinė kolegija)	Female	Deputy Director for Studies and Research

Focus area

1-st panel meeting: Knowledge management in the open innovation ecosystem for Health Technologies and Biotechnology.

Aim – identify and visualize sources, location, flows and storage of the knowledge within open innovation ecosystem for Health Technologies and Biotechnology that fosters the emergence of ideas and scenarios leading to innovative solutions and enhance their market uptake.

Output: concluded cognitive knowledge map showing the sources of knowledge, characteristics, types and uses.

Methodology used

Strategic Options Development and Analysis (SODA), *Graphical facilitation and visualization approach*. In order to gather as much information as possible for creation of knowledge map, a focus group method (group discussion) was used. This approach focuses on a topic of interest to all participants. The main benefit of group discussion is the interaction between group participants, which reveals perceptions, beliefs and values of the problem being studied. Interaction helps participants express their opinions, respond to the opinions of others, raise their own questions and answer other participants' questions.

16 experts from key organizations, participants in the open innovation ecosystem, related to the priority of smart specialization chosen by the project – Health Technology and Biotechnology – were invited to participate in the panel meeting. Experts invited represented Public administration sector at national level (*Ministry of the Economy and Innovation of the Republic of Lithuania, Ministry of Health of the Republic of Lithuania, Ministry of Social Security and Labour of the Republic of Lithuania, Government Strategic Analysis Center, Agency for Science, Innovation and Technology*) and regional (city) level (*Klaipeda City Municipality Administration, Klaipeda City Public Health Bureau, Budget institution Klaipeda City Social Support Center*); Business sector (*Baltic Tech Park, Ltd. "IAMUS innovations"*); Research and education sector (*Lithuanian Innovation Center, Lithuanian University of Health Sciences, Klaipeda State University of Applied Sciences*) and Civil society / Users sector (*M. Čiuželio Charity and Support Foundation "Silver Line"*).

Nine experts arrived to the 1st panel meeting: five represented Public administration sector (*Agency for Science, Innovation and Technology, Klaipeda City Municipality Administration, Klaipeda City Public Health Bureau, Budget institution Klaipeda City Social Support Center*), two Business sector (*Ltd. "IAMUS innovations"*) and two Research and Education sector (*Lithuanian Innovation Center, Klaipeda State University of Applied Sciences*). Seven invited experts did not attend the session.

Trigger question

Trigger question – **based on your values and personal experience, how do you describe the best way to manage knowledge in an open innovation ecosystem?**

Klaipeda State University of Applied Sciences project group experts Dainius Urbanavicius, Dr. Jurga Kucinskiene and Dr. Nijole Galdikiene prepared a semi-structured questionnaire for data collection.

The discussion questions covered four main areas: *benefits* (why participants act in the open innovation ecosystem and what motivates them); *knowledge related to innovation activities*; *actors involved* in open innovation ecosystem; *issues and limitations*, which hinder knowledge management in the open innovation ecosystem.

Discussion questions:

- What motivates search, store and apply knowledge for addressing the aging community, older adults' problems? What kind of benefits are you/your organization searching from knowledge management?
- What knowledge do you lack to play a more constructive role in solving the problems of older adults?
- Where you are looking for the knowledge you need? What sources of knowledge do you usually choose? What sources of knowledge are most easily accessible?
- Which format do you find explicit and tacit knowledge to operate in innovation activities? Where is the knowledge located?

- Where, do you think, the knowledge related to innovation activities should be stored? In which format the knowledge is most easily to use?
- Who are the key players of “silver economy” in an open innovation ecosystem? Who creates the knowledge related to innovation activities toward the Health Technologies and Biotechnologies? Who owns that knowledge?
- How knowledge flows between innovation actors currently? How do you share knowledge among actors of “silver economy”? How we should improve information flows and knowledge transfer between innovation actors?
- Who currently uses the knowledge within Lithuanian open innovation ecosystem? Who is not currently using the knowledge but might do so they had easy Access?
- What are the conditions that may support availability and easy Access to relevant knowledge within Lithuanian open innovation ecosystem? What are the major drivers in your organization to share knowledge with other actors (Lithuanian) of open innovation ecosystem?
- What are the major barriers in your organization to share knowledge with other (Lithuanian) actors of open innovation ecosystem?
- What kind of role personal relationships play in knowledge sharing within open innovation ecosystem?
- What kind of inter-organizational relationships enhance knowledge sharing within open innovation ecosystem?

It was also developed demographic and social data questionnaire. Participants attending the panel meeting, registered, filled out demographic and social data questionnaire and signed a participation in a group discussion with the consent form.

At the beginning of the panel meeting, project manager Egle Brezgyte introduced the project objectives, activities and results. Project researcher dr. Nijole Galdikiene introduced the main concepts of the Silver economy and presented Lithuania's situation in the European context. The focus group discussion was led by project expert Dainius Urbanavicius. At the beginning of the group discussion, participants were introduced with a detailed interview protocol: rules, how to conduct the interview, how long to answer questions, and so on. Participants of group discussion were asked questions and given one minute to think about the question. Each participant wrote down the key thought on the leaflet (one leaflet per thought) and then presented it to the whole group. 5-10 minutes was given for discussion the thoughts of each question. All fill leaflets were collected and glued onto separate large sheets, grouped by area. The panel meeting was filmed.

Data analysis

Group discussion findings were sorted, merged and put into a Microsoft Office Excel table. Nine categories have been identified by systematizing the data: *actors; knowledge forms; knowledge sources; knowledge accumulation and storage motivation; knowledge storing ways; help of older adults to share knowledge; knowledge sharing ways; knowledge sharing promotion; knowledge management barriers.*

Panel Meeting 2

Place and Date

- Lighthouse, Liepu str. 83, Klaipeda.
- December 6, 2019.

Expert panel characterization

N	Name of the expert	Name of the respective organization	Gender	Current position in the organization
1	Jolita Razumiene	Agency for Science, Innovation and Technology (MITA)	Female	Project manager
2	Jurate Grubliauskiene	Klaipeda City Public Health Bureau (Klaipėdos miesto visuomenės sveikatos biuras)	Female	Director
3	Lina Kisiele	Agency for Science, Innovation and Technology (MITA)	Female	Innovation manager, expert
4	Ingrida Tinfaviciene	Lithuanian Innovation Center (Lietuvos inovacijų centras)	Female	Project manager
5	Vaida Svidriene	Ltd. "IAMUS innovations"	Female	Executive Assistant of the Director
6	Vitalija Radiukiene	Ltd. "IAMUS innovations"	Female	Project manager
7	Egle Buivydaite	Budget institution Klaipeda City Social Support Center (Biudžetinė įstaiga Klaipėdos miesto socialinės paramos centras)	Female	Deputy Director for Social Affairs
8	Nijole Galdikiene	Klaipeda State University of Applied Sciences (Klaipėdos valstybinė kolegija)	Female	Deputy Director for Studies and Research
9	Diana Stankaitiene	Budget institution Klaipeda City Social Support Center (Biudžetinė įstaiga Klaipėdos miesto socialinės paramos centras)	Female	Director
10	Aldona Ridikiene		Female	Senior
11	Vida Rickiene	Public institution "Dignified aging" (VšĮ "Ori senatvė")	Female	Director
12	Stase Jorudiene		Female	Senior
13	Leonas Smaizys		Male	Senior
14	Kristina Buslajeva	Klaipeda City Elderly People Association (Klaipėdos miesto pagyvenusių žmonių asociacija)	Female	President

Focus area

2nd panel meeting: The role of older adults in knowledge transfer in the open innovation ecosystem for Health Technologies and Biotechnology.

Aims – to increase understanding of the active role of older adults and relevant stakeholders creating an innovations in open ecosystem; supplement and clarify the information for the knowledge map; rank information by priority in each category of knowledge map; identify cause-and-effect relationships between knowledge map categories.

Output: prepared knowledge management map in the open innovation ecosystem for Health Technologies and Biotechnology, recommendations and possible solutions to the knowledge management model, and identified the willingness and potential of older adults to participate in the open innovation ecosystem for Health Technology and Biotechnology.

Methodology used

25 experts from key organizations, participants in the open innovation ecosystem related to the priority of the project's smart specialization - Health Technology and Biotechnology - were invited to participate in the

second panel meeting. Experts invited represented Public administration sector at national level (*Ministry of the Economy and Innovation of the Republic of Lithuania, Ministry of Health of the Republic of Lithuania, Ministry of Social Security and Labour of the Republic of Lithuania, Government Strategic Analysis Center, Agency for Science, Innovation and Technology*) and regional (city) level (*Klaipeda City Municipality Administration, Klaipeda City Public Health Bureau, Budget institution Klaipeda City Social Support Center*); Business sector (*Baltic Tech Park, Ltd. "IAMUS innovations"*); Research and education sector (*Lithuanian Innovation Center, Lithuanian University of Health Sciences, Klaipeda State University of Applied Sciences*) and Civil society / Users sector (*M. Čiuželio Charity and Support Foundation "Silver Line"; Seniors associations and organizations(NGO)*) and Seniors.

14 experts arrived to the 2nd panel meeting: five represented Public administration sector (*Agency for Science, Innovation and Technology, Klaipeda City Public Health Bureau, Budget institution Klaipeda City Social Support Center*), two Business sector (*Ltd. "IAMUS innovations"*) two Research and Education sector (*Lithuanian Innovation Center, Klaipeda State University of Applied Sciences*), two Seniors associations and organizations (*Public institution "Dignified aging", Klaipeda City Elderly People Association*) and three seniors. 11 invited experts did not attend the session.

Trigger question

Trigger question – **based on your values and personal experience, in what ways older adults can enhance knowledge sharing/transfer/management within an open innovation ecosystem?**

Klaipeda State University of Applied Sciences project group experts Dainius Urbanavicius, dr. Jurga Kucinskiene and dr. Nijole Galdikiene prepared a semi-structured questionnaire for data collection.

Discussion questions:

- What can older adults offer to other players in the “silver economy” (NGOs and other organizations) to improve knowledge sharing and knowledge management?
- What role does older adults and their NGOs play or can play in developing new products or services in the “silver economy”?
- How can older adults contribute to better knowledge management in creating new products in the “silver economy”?
- What actions would encourage older adults or their organizations to become more effectively involved in developing new services and products for them?
- What practical initiatives do you recommend increasing the participatory role of older adults creating new products for them in the “silver economy”?

The panel meeting was led by project expert Dainius Urbanavicius. The results of the 1st panel meeting were presented at the beginning - the knowledge map arranged in a Microsoft Office Excel table. The panel meeting consisted of two parts: group discussion based on prepared questions and ranking information from both group discussions and establishing cause and effect relationships in the knowledge map categories.

Before the group discussion began, participants were divided into groups (each group should have representatives from different sectors) and a detailed interview protocol was presented: rules, how to conduct the interview, how long to answer questions, and so on. After the question was asked, each member of the group had one minute to reflect on the question and write down their thoughts on a leaflet. Thereafter,

participants in each group discussed their participants' thoughts for five minutes and presented them to the entire discussion group. All completed leaflets were collected.

During the second part of the panel meeting, the groups were introduced with a knowledge map in a Microsoft Office Excel table and participants identified five key points in each knowledge map category and ranked them from most important to least important. The next task for the groups was to find as many relationships as possible between the different categories of the knowledge map. The panel meeting was filmed.

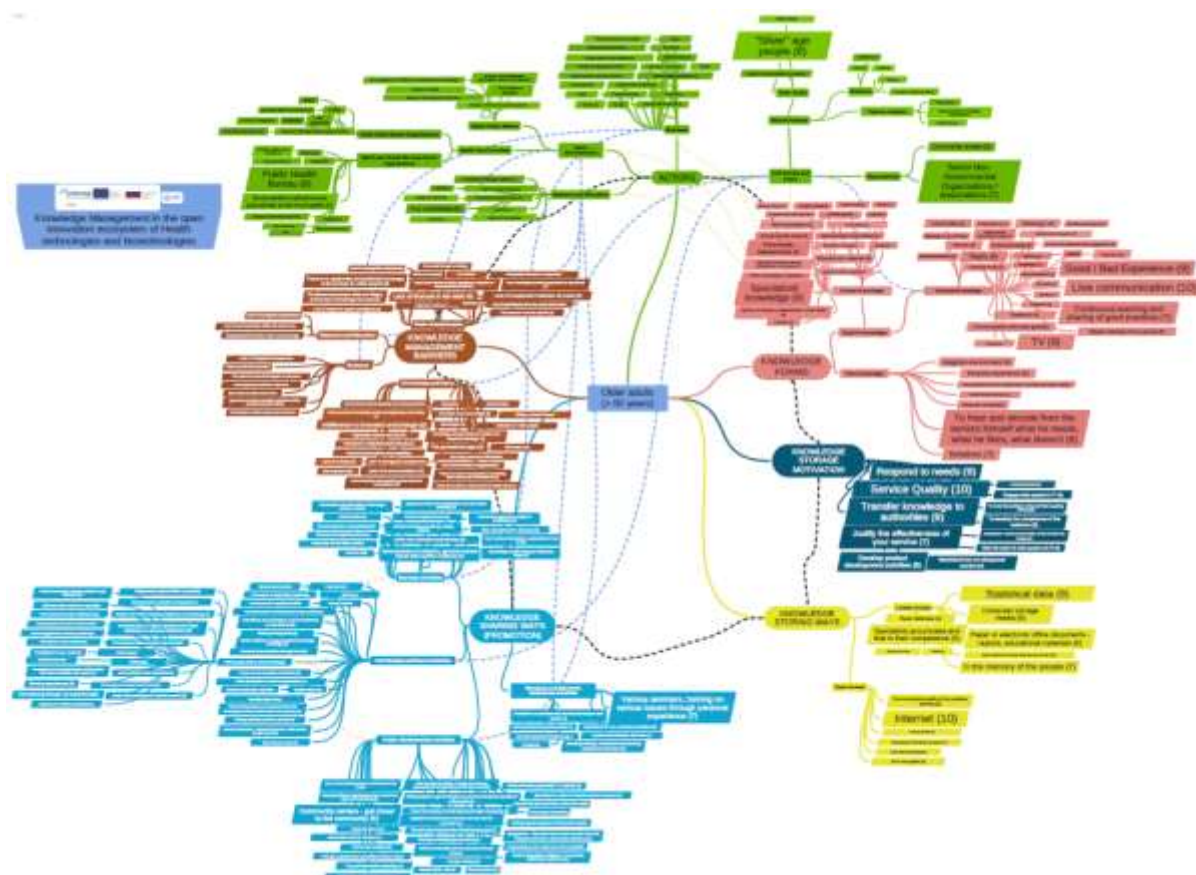
Data analysis

The data from the 2nd panel meeting was sorted, merged and put into a knowledge management in open innovation ecosystem of Health Technology and Biotechnology map visualized by Coggle programme. Six categories have been identified by systematizing the data: *actors*; *knowledge forms*; *knowledge storage motivation*; *knowledge storing ways*; *knowledge sharing ways (promotion)*; *knowledge management barriers*.

Results of Panel Meetings 1 & 2

Knowledge structure/Group cognitive map created

Knowledge Management in the open innovation ecosystem of Health Technologies and Biotechnologies



Findings

- Experts received unique 289 answers (showed in the map) to trigger questions.
- Experts divided all answers into 6 groups: 1) *Actors*, 2) *Knowledge forms*, 3) *Knowledge storage motivation*, 4) *Knowledge storing ways*, 5) *Knowledge sharing ways (promotion)*, 6) *Knowledge management barriers*.
- The biggest groups by the number of answers are: I) *Knowledge sharing ways (promotion)* (92), II) *Actors* (66), III) *Knowledge forms* (55), IV) *Knowledge management barriers* (49), V) *Knowledge storing ways* (15), VI) *Knowledge storage motivation* (12). Number of answers to the group show the knowledge and personal experience of the workshop participants. The study shows how little people know about ways to store the knowledge.
- Almost each of these groups were divided into subgroups. 1) *Actors*: a) Public administration, b) Business, c) Civil Society and Users, d) Research and Education; 2) *Knowledge forms*: a) Tacit knowledge, b) Explicit knowledge; 4) *Knowledge storing ways*: a) Open access, b) Limited access; 5) *Knowledge sharing ways (promotion)*: a) Public administration activities, b) Business activities, c) Civil Society and Users activities, d) Research and Education activities; 6) *Knowledge management barriers* (related to) a) Public administration, b) Business, c) Civil Society and Users, d) Research and Education. Only *Knowledge storage motivation* had no subgroups.
- Experts used typical classification of *Actors* - economic sector (*Business*), policy (*Public administration*), science (*Research and Education*) and civil society (*Civil Society and Users*). That also proved to be a good classification for *Barriers knowledge management* and *Ways to share the knowledge*.
- Participants of the panel discussions prioritized their answers. The maximum votes answer could get is 10. Top 3 of each group involve (in some cases third place is shared between few answers):
 - 1) *Actors*: "Silver" age people (9), Public Health Bureau (8), Senior Non-governmental organizations / associations (7).
 - 2) *Knowledge forms*: Live communication (10), Good / bad experience (9), TV (9).
 - 3) *Knowledge storage motivation*: Service quality (10), Respond to needs (9), Transfer knowledge to authorities (9).
 - 4) *Knowledge storing ways*: Internet (10), Statistical data (9), In the memory of the people (7).
 - 5) *Knowledge sharing ways (promotion)*: Various seminars, training on various issues through personal experience (7), Community centers - get closer to the community (6), Volunteering through my experience (4), Involvement of other seniors and their relatives in various initiatives (4), Demonstration of attention, genuine interest (show their opinion matters) (4).
 - 6) *Knowledge management barriers*: Indifference to innovation and change (5), Lack of finance in the state (5), Lack of cooperation between all areas (4), There is no systematic and publicized coverage of all services for older people (4), Lack of communication (4), The regeneration gap (4).

Dotted lines show the cause - effect relations between groups and subgroups. The main groups are all interrelated. The biggest amount of relations was by *Actor* profile. Some of other types of relations include: *Civil Society and Users* to Nonformal communication and to Tacit knowledge; *Business, Civil Society and Users, Research and Education* to Formal communication; *Older people help sharing the knowledge* to *Business* and *Public Administration*.

Intervention strategies and actions

- The main intervention strategies are based on *Barriers knowledge management*. The Knowledge Management Model should solve these issues.
- The study also showed the wide range of participants (66) that all will have take part in the Knowledge Management Model. That implies hard work and extended strategy on communicating changes and possibilities to all, not only finding the most meaningful and appropriate role.

3.4 Russia

Priority in Russia

The priority ICT & well-being was selected based on the analysis of the strategic documents of St. Petersburg.

The strategic documents defining growth of St. Petersburg that are comparable to Smart Specialization Strategy are:

- The “Strategy of economic and social development of St. Petersburg until 2035” (hereafter Petersburg’s Strategy or Strategy 2035) (previous version was until 2030),
- The state program “Development of industry, innovation and agriculture in St. Petersburg”, approved by the Government of St. Petersburg,
- The Smart City of St. Petersburg program.

The general goal of the St. Petersburg Strategy is to achieve the sustainable improvement of the citizens’ quality of life and an increase of global competitive capacity of Saint-Petersburg based on sustainable growth resulting from the development of innovation and knowledge-based economy. The strategic priorities contain these directions:

- human capital development,
- improvement of quality of urban and living environment,
- sustainable economic growth,
- ensuring efficiency of management and civil society.

These directions are summarized under the broad strategic objective to ensure a sustainable improvement of citizens’ quality of life through sustained economic growth with the results of technology innovation and increasing global competitiveness of St. Petersburg.

Summary of Knowledge Panel Meetings 1 & 2

Panel Meeting 1

Place and date

- ITMO University, St. Petersburg, Russia
- December 16, 2019

Expert panel characterization

The six panel members participated in this meeting were challenged to think about conditions enabling knowledge collaboration and sharing related to silver economy. Participants of the knowledge panel meetings had diverse sources of expertise. The round table was held in a brainstorming format with the participation of representatives of the research community in the field of sociology of old age and demography, experts from innovative infrastructures and a business that creates products for the older generation.

N	Name of the expert	Name of the respective organization	Gender	Current position in the organization	Reasoning for being selected to the panel
1	Oxana Parfenova	Sociological Institute of the Russian Academy of Sciences	F	Senior Researcher	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority

2	Kirill Gur'ev	Technopark St. Petersburg, Business Center Ingria	M	Head of Laboratory	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
3	Elena Ushakova	ITMO University	F	Head of Department	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
4	Segrey Lobkovsky	Regional Fund for Scientific and Technical Development of St. Petersburg.	M	Leading Specialist	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
5	Segrey Tarakanov	Center for Medical, Environmental Instrumentation and Biotechnology of ITMO University	M	Director	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
6	Segrey Simoncev	ONPP 'Technology'	M	Manager	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority

Focus area

Panel Meeting 1: *Knowledge in the ICT & wellbeing open innovation silver age ecosystem*

Methodology used

Strategic Options Development and Analysis (SODA), cognitive mapping and nominal group techniques.

Trigger question

In your opinion, what knowledge in the field of ICTs and wellbeing can be available and useful for generating demanded solutions?

The first meeting was devoted to the initial intensive collection of any useful information about the needs for specific knowledge, the location of this knowledge and the institutions related to the generation, storage and use of this knowledge.

As answers accumulated to the first trigger question, additional questions were asked:

- What is your personal experience in recognizing the occurrence and use of specific ICT knowledge?
- How can we organize and classify the information collected now?
- How can we put it on the knowledge map for future use?

The insignificant experience of the meeting participants in using the SODA method raised a series of additional questions regarding the procedure for capturing the generated ideas and their ordering. However, as a result of the general efforts directed by the moderator, a collective decision was made on the preliminary description of the various types of needs, the satisfaction of which by ICT leads to the wellbeing and further listing of possible ICT solutions and the knowledge necessary to satisfy these needs.

As a result, we received sets of stickers with descriptions of specific ICT solutions and knowledge ensuring the wellbeing of silver age grouped by the types of needs that they satisfy. This dataset was used to create a draft knowledge map for discussion at the next meeting.

Panel Meeting 2

Place and Date of the Panel Meeting 2

- ITMO University, St.Petersburg, Russia.
- December 24, 2019.

Expert panel characterization

The four panel members of the knowledge panel meetings had diverse sources of expertise. The round table participants looked with fresh eyes at the results of the previous seminar, after which they added options for product areas in which the ecosystem of knowledge management in the field of silver generation should be developed.

N	Name of the expert	Name of the respective organization	Gender	Current position in the organization	Reasoning for being selected to the panel
1	Segrey Lobkovsky	Regional Fund for Scientific and Technical Development of St. Petersburg.	M	Leading Specialist	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
2	Elena Ushakova	ITMO University	F	Head of Department	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
3	Segrey Simoncev	ONPP 'Technology'	M	Manager	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
4	Kirill Gur'ev	Technopark St. Petersburg, Business Center Ingria	M	Head of Laboratory	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority
5	Segrey Tarakanov	Center for Medical, Environmental Instrumentation and Biotechnology of ITMO University	M	Director	Represents one of the key organizations in the open innovation ecosystem related to the RIS3 priority

Focus area

Panel Meeting 2: *The role of senior citizen/end-users in the ICT-solutions development for the silver age wellbeing.*

Methodology used

Strategic Options Development and Analysis (SODA), cognitive mapping and nominal group techniques.

3. Therefore, it was decided to create a knowledge map based on the needs of the main actors (citizens of silver age), the potential for their satisfaction with the help of IT innovations and actors-potential suppliers and enables of such solutions.
4. The developed knowledge map and its discussion showed that the logically sound links between the potentially necessary IT innovations and their suppliers are for the most part broken for two reasons: lack of stakeholder knowledge about each other, lack of motivation to obtain this knowledge.

3.5 Denmark

This is the report of GA 3.1 WP 3 in Interreg project Osiris. GA 3.1 aims to realize a knowledge mapping process in the project regions and countries. Knowledge maps are useful tools for locating sources of knowledge, its characteristics, its classification and its usage. Knowledge Panel Meetings will focus on identifying and visualizing sources, location, flows and storage of knowledge within open innovation ecosystem (related to the RIS3 priority to be tackled in each country) that fosters the emergence of ideas, concepts and scenarios leading to innovative solutions and enhance their market uptake.

The Report is produced by the expert team at VIA University College: Michael Smærup, Mads Lund Andersen, Bodil Sørensen, Peter Keller Hansen (ill.) & Kirsten Maibom

RIS3 Priority in Denmark

Growth drivers and Smart Industry

Summary of Knowledge Panel Meetings 1 & 2

Panel Meetings were held in combination with GA 3.2 workshop 1.

Panel Meeting 1

Place and date

- Rådhuspladsen 2, 8000 Aarhus C, Denmark
- December 4th, 2019

Expert panel characterization

N	Name of the expert	Name of the respective organization	Current position in the organization	Reasoning for being selected to the panel
1	Bente Besenbacher	Aarhus School of Engineering	Head of Program	Academia
2	Finn Olesen	Aarhus University	Senior Lecturer	Academia
3	Karin Christiansen	VIA University College	Docent Research Centre for Health and Welfare Technology	Academia
4	Martin Vesterby	Aarhus University	Head of INNOX Health	Private business
5	Michael Smærup	VIA University College	Senior Lecturer	Academia
6	Bodil Sørensen	VIA University College	Senior Lecturer	Academia
7	Signe Schlichting Matthiesen	VIA University College	Student Assistant	Academia
8	Peter Keller Hansen	VIA University College	Senior Lecturer	Graphical facilitator
9	Kirsten Maibom	VIA University College	Head of program for Ageing	Academia
10	Arne Pedersen	DaneAge Association	Member	Citizen representative
11	Réne Dybdal	Randers Social & Health Care College	Head	Public authority
12	Henrik Larson	House of Industry	CEO Center for Industry	Public administration
13	Majbritt Aagaard	Medtech Innovation Consortium	Senior Project Manager	Business collective

14	Sussi Bianco	The House of Bianco	Head	Private business
15	Emil Toft Brøndum	Aarhus Municipality	Project Leader	Public authority
16	Heidi Hundrup Rasmussen	Aarhus Municipality	Project leader	Public authority

Focus area

Panel Meeting 1: Knowledge management in the open innovation ecosystem Focused on Growth drivers and Smart Industry.

Aim of meeting: To identify significant actors in the field of older people and technology and to identify key elements and their interrelationships. To identify the need for knowledge and focus on current knowledge flows in an open innovation ecosystem for Growth drivers and Smart Industry

Output: A knowledge map which will show the sources and actors of knowledge, and the flow of knowledge in an open innovation ecosystem.

Methodology used

At the first panel meeting we used a modified version of the CAT facilitation methodology (Collective Action Toolkit) (frogdesign.com/CAT). The methodology is based on the adaption of design processes used of the production consumer products and services, making it especially relevant in the perspective of the OSIRIS project as well. It furthermore focuses on action planning and mapping and thus provides a basis for ascertaining and understanding a collective goal. The activities were used in conjunction with a graphical facilitator. The experts Michael Smærup and Mads Lund Andersen, from VIA acted as facilitators in the knowledge panel meeting. The graphical facilitation provided a visual representation of the days' findings, as well provides a basis for facilitation throughout the day. Graphical Facilitation is an interactive style of leading groups using large-scale imagery and displays (Sibbet, 2009).

The goal was to achieve so much information as possible from the panel members with a special interest in smart industry and growth drivers. Also the goal was to answer relevant questions related to the topic. In the panel meeting we made use of modified tools from three of the six activity areas, specifically building, seeking and imagining, since they are the most relevant parts of the methodology.

At the panel meeting the participants were asked to identify what knowledge was needed within their particular perspectives on the field, as well as identifying the knowledge flows they were personally privy to. This was followed by a discussion about how to create optimal conditions for knowledge flow within the field, in general and what currently drives the sharing and externalization of knowledge, and what barriers can be located.

Trigger questions

We used a translated version of the same "trigger questions" as posed by HAMK, in order to provide a comparable basis for the qualitative material. We deemed the questions too complex for some of the participants to answer directly, and therefor merely used them as a frame and guide for the panel meetings.

(1) Benefits

- What motivates you/your organization to operate in an open innovation ecosystem?
- What kinds of benefits are you/your organization searching in an open innovation ecosystem?

(2) Knowledge related to innovation activities

- What kind of knowledge do you/your organization need to operate in an innovation ecosystem?
- Where is the knowledge located?

- Which format does the explicit knowledge related to innovation activities have? From where/whom can the explicit knowledge be found?
- Which format does the tacit knowledge related to innovation activities have? From where/whom can the tacit knowledge be found?
- In which format and location, the knowledge related to innovation activities should be stored?
- How knowledge flows between innovation actors currently? How should knowledge flow be improved in an open innovation ecosystem?
- What kinds of actions would you/your organization prefer to foster the knowledge flow in an open innovation ecosystem?

(3) Actors involved

- Who are the key players in an open innovation ecosystem?
- Who creates the knowledge related to innovation activities toward the RIS3 priority (in Finland: Smart living environment)? Who owns that knowledge?
- Who currently uses the knowledge within open innovation ecosystem?
- Who is not currently using the knowledge but might do so they had easy access?

(4) Issues and limitations

- What are the conditions that may support availability and easy access to relevant knowledge within open innovation ecosystem?
- What are the major drivers in your organization to share knowledge with other actors of open innovation ecosystem?
- What are the major barriers in your organization to share knowledge with other actors of open innovation ecosystem?
- What kind of role personal relationships play in knowledge sharing within open innovation ecosystem?
- What kind of inter-organizational relationships enhance knowledge sharing within open innovation ecosystem?

Panel Meeting 2

Place and Date of the Panel Meeting 2

- Aarhus Municipality, Grøndalsvej 2, 8260 Viby J, Denmark
- December 13th, 2019.

Expert panel characterization

N	Name of the expert	Name of the respective organization	Current position in the organization	Reasoning for being selected to the panel
1	Finn Olesen	Aarhus University	Associate Professor School of Communication and Culture	Academia
2	Karin Christiansen	VIA University College	Docent Research Center for Health and Technology	Academia
3	Michael Smærup	VIA University College	Senior Lecturer	Academia
4	Bodil Sørensen	VIA University College	Senior Lecturer	Academia
5	Mads Lund Andersen	VIA University College	Lecturer	Academia
6	Arne Pedersen	DaneAge Association	Member	Citizen representative
7	David Ward	DaneAge Association	Member	Citizen representative
8	Klaus Bræmer-Jensen	DaneAge Association	Member	Citizen representative
9	Lis Hoffmann Jensen	DaneAge Association	Member	Citizen representative

10	Sussi Bianco	<i>The House of Bianco</i>	<i>Head</i>	Private business
11	Henrik Larson	<i>House of Industry</i>	<i>CEO Center for Industry</i>	Public authority
12	Emil Toft Brøndum	<i>Aarhus Municipality</i>	<i>Project Leader</i>	Public authority
13	Jette Hede	<i>Viborg Municipality</i>	<i>Head Department of Welfare Technology</i>	Public administration
14	Heidi Hundrup Rasmussen	<i>Aarhus Municipality</i>	<i>Project Leader</i>	Public authority

Focus area

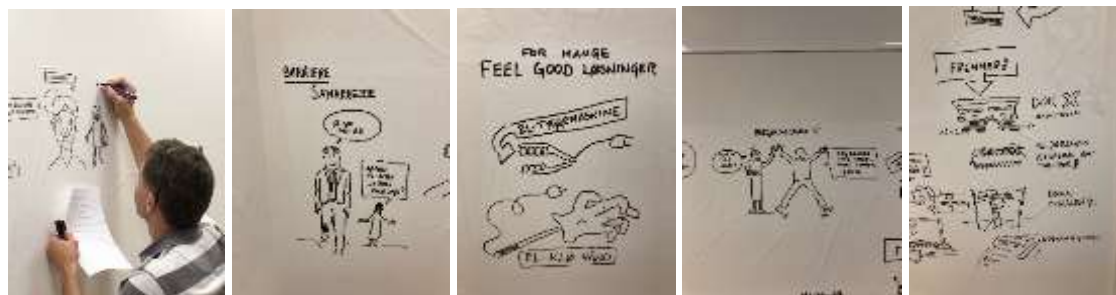
Panel Meeting 2: Mapping of knowledge management in the open innovation ecosystem for Growth drivers and Smart Industry.

Aim of meeting: To identify significant actors in the field of older people and technology and to identify key elements and their interrelationships. To identify the need for knowledge and focus on what is needed to create optimal conditions for knowledge flows in an open innovation ecosystem for Growth drivers and Smart Industry

Output: A knowledge map which will show the sources and actors of knowledge, and the flow of knowledge in an open innovation ecosystem.

Methodology used

At the second panel meeting we continued using the modified version of the CAT facilitation methodology (Collective Action Toolkit). The activities were used in conjunction with a graphical facilitator and the experts Michael Smærup and Mads Lund Andersen, from VIA acted as facilitators. The experts presented the findings from the 1st panel meeting and the participants discussed the results in order to make new perspectives knowledge. The participants then interviewed each other about specific challenges due to knowledge flow, and how to get more efficient about these challenges. After this, we had a process about Idea generation - "Grow an idea" – where the participants discussed the need to create optimal conditions for knowledge flow and provided suggestions for solutions. The graphical facilitator made drawings during the process in order to inspire the participants (see figures below).



Trigger questions

The same questions as in panel meeting one were used, but also to obtain answers from the following questions:

- What resources can you as senior citizen offer to other organizations to enhance knowledge sharing and knowledge management in an open innovation ecosystem?
- What would be the role for you as a senior citizen and your organizations in an open innovation ecosystem?

- What kinds of activities/tasks can you as a senior citizen accomplish to enhance knowledge management in an open innovation ecosystem?
- What intervention strategies do you recommend for a deeper and effective participation of senior citizens in an open innovation ecosystem?
- What practical initiatives do you recommend to increase the participatory role of senior citizens in an open innovation ecosystem?

Knowledge Map

The knowledge map was made in two versions after the panel meeting. The graphical facilitator and the two experts first of all constructed a “simple” knowledge map. Furthermore a complex knowledge map were produced in Mindview 7.0. The knowledge maps were validated on workshop 1 GA 3.2.

Results of Panel Meetings 1 & 2

Knowledge structure/Group cognitive map created

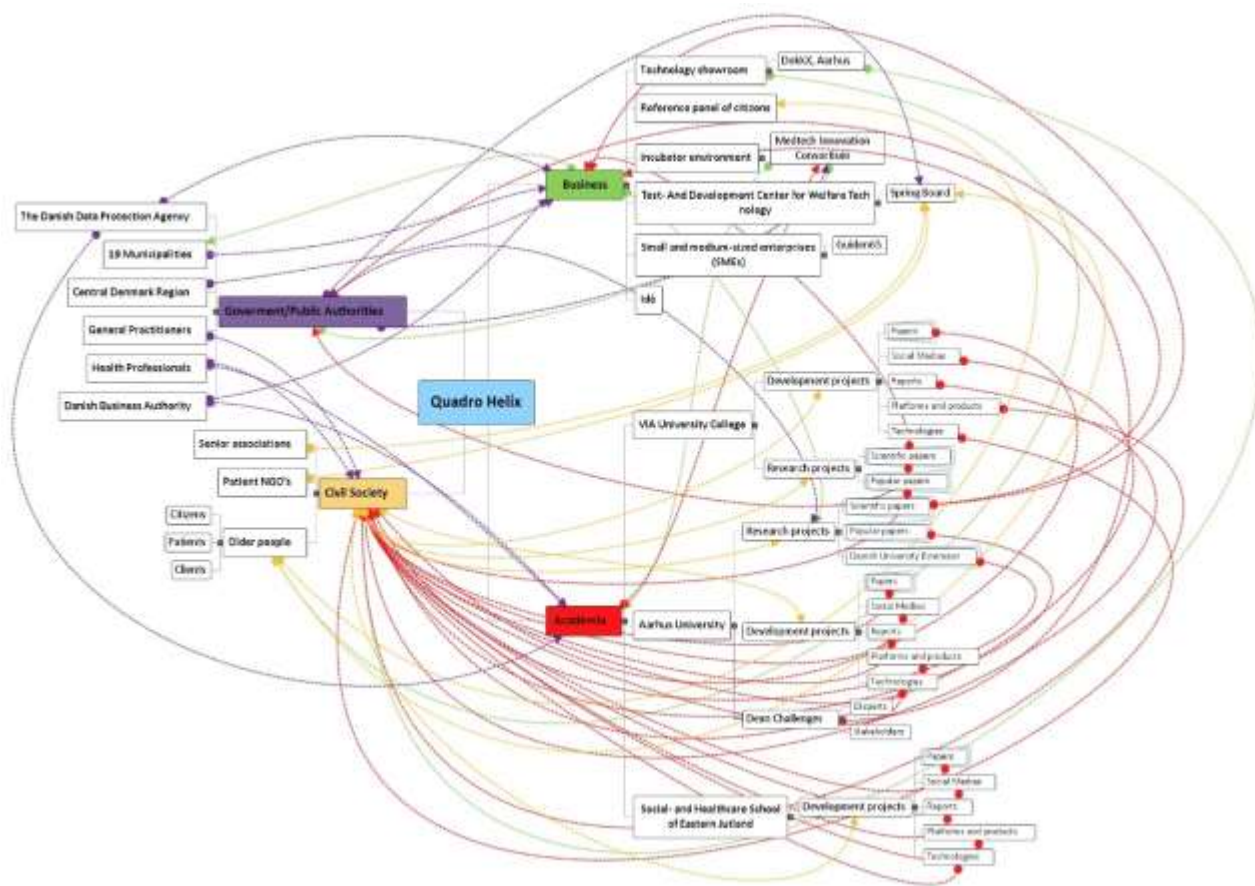


Figure 1 Knowledge map of knowledge flow in an open innovation ecosystem

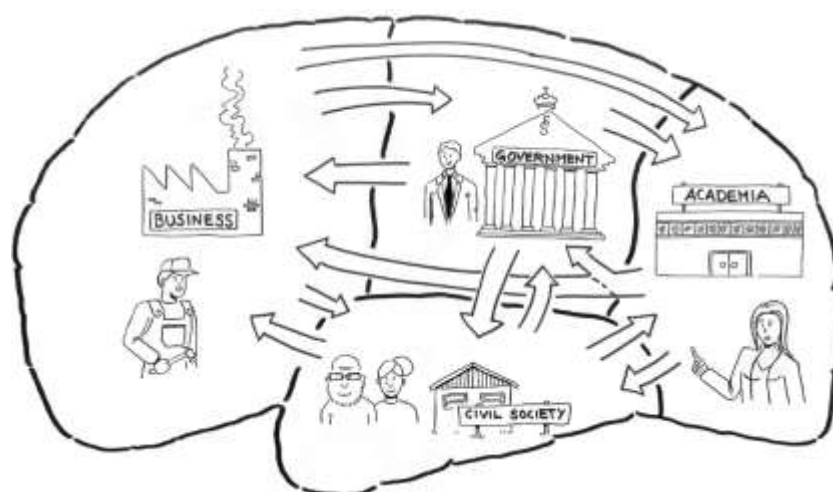


Figure 2 Simple map of knowledge flow in an open innovation ecosystem

Summary of Findings

- In Denmark, there is a tradition of working in an open innovation ecosystem: People meet and exchange knowledge and share experience on selected topics. For example in the DaneAge Association where politicians and civil society sometimes meets and discuss themes
- Dialogue and collaboration are important in finding the best solutions for the actors in the knowledge system. If the actors are able to see a common idea and develop these ideas together, then there will be greater opportunity to create value for the stakeholders. As an example, some companies are creating springboards, where companies present their thoughts and ideas into a project, and a panel of citizens and representatives gives feedback. Another example is Dean Challenge where the purpose is to give students an opportunity to use the competencies they have acquired at the university in a competition where innovative ideas are in focus. Each team of students pick and work on a case in four weeks and afterwards hand in a solution
- Different kinds of knowledge are needed. Open dialogue is the prerequisite for exchanging knowledge and experience. There are different types of knowledge, for example the specific knowledge that senior citizens use in everyday life. Then there is expert knowledge, research knowledge and professional knowledge, which is linked to the higher educated professionals such as engineers, nurses and physiotherapists as well as researchers from the universities. There is the political knowledge that can be difficult to understand because it is so changeable and overriding.
- The knowledge format can be diverse. It is important to use different methods and formats. For example, older citizens are not always able to read and write, but visual communication in the form of drawings, graphics, films and sound are often great tools and can supplement the linguistic media. All knowledge material must be accessible to everyone in open access.
- As a startup, it is difficult to collaborate with DaneAge Association - they say, "come back when the solution is more concrete". Would it be possible with a panel of citizens/super users at DaneAge Association who would like to be contacted when a SME needs help in developing a new product?
- The municipality often have one-year projects because of one-year budgets and this often cause projects to die in the initial phase – this is a big challenge for startup SME's. The government or municipality is recommended to support startup SME's.

- There should be better opportunities for radical innovation in Denmark. The municipalities are afraid to make mistakes and end up on the front-page in a newspaper when radical innovation is made. Therefore, it turns into patch solution innovation - for example a soap dispenser that is just slightly better than the old one instead of thinking radical new solutions.
- There is a big difference between the municipalities focus on innovation. Aarhus municipality is a leader in this regard, but other municipalities are lagging behind. Aarhus municipality has 20-30 project managers and in Viborg Municipality there are only 6.
- In an open innovation ecosystem there should be open access to existing knowledge for all. There is a possibility to use various media channels and forms such as movies, animation videos, graphic design, YouTube, libraries, show rooms, test centers, webinars, courses, seminars, websites, digital meeting places like Silver digital Hub.

Intervention strategies and actions

The intervention strategies should focus on handling of barriers due to knowledge management. The Knowledge map highlights where knowledge flows and visualizes where knowledge management requires more attention and optimization to the Quadro helix actors.

Additional information on the CAT Methodology and modifications

At the first and second panel meeting we used modified tools from three of the six activity areas, specifically *building*, *seeking* and *imagining*, since they are the most relevant parts of the methodology.

Required materials for the panel meetings were:

- Large movable whiteboard
- Flip over
- Markers of different colors
- 4 tape recording tools (recording of all discussions should be made for the further transcriptions)
- 500 post-it notes (of different colors)
- Pens and paper for each panel member

The following are two representations of the proposed room layout on panel meeting 1 in order to ascertain as dynamic and open a group dialogue, as possible. The panels will start in separate groups, and later in the day the participants will be placed in two groups

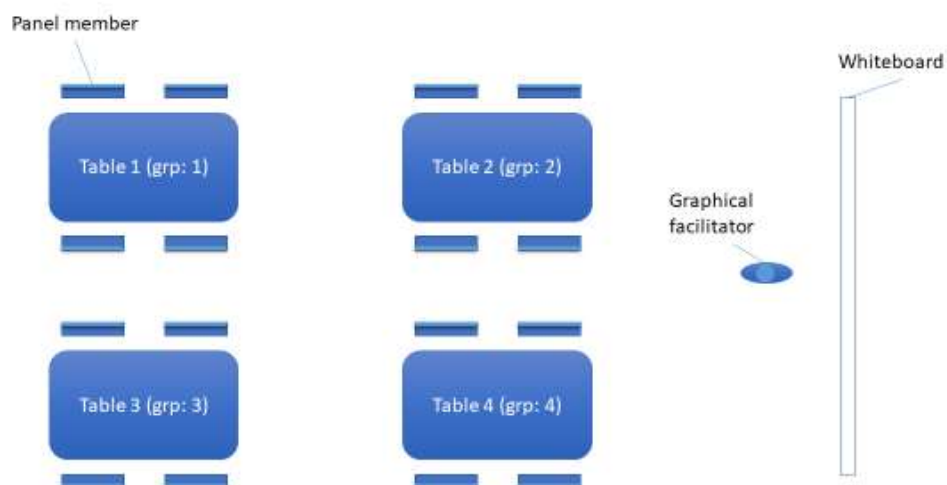


Figure 3 Illustration 1 - room layout part 1

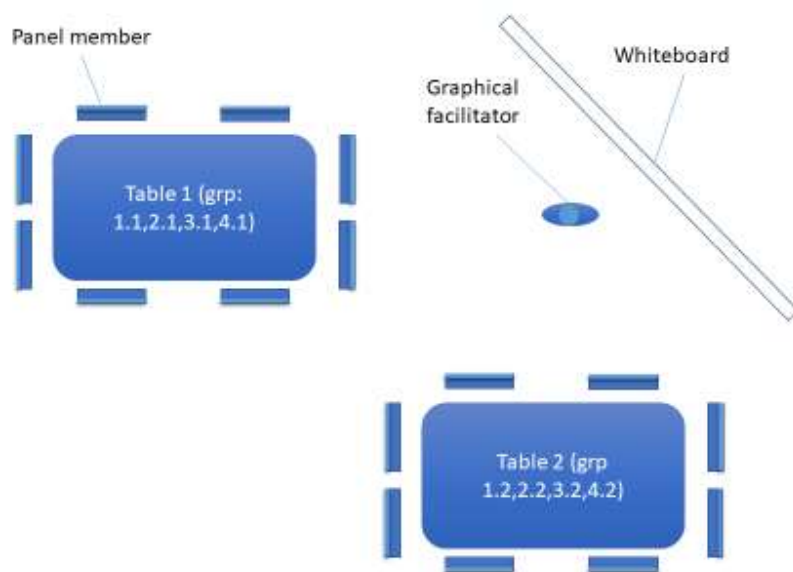


Figure 4 Illustration 2 - room layout part 2

3.6 Estonia

RIS3 Priority in Estonia

ICT Services for elderly people

Summary of Knowledge Panel Meetings 1 & 2

Panel Meeting 1

Place and date

- Virtual session conducted via secure ZOOM channel

28.09.2020 10:00-12:30

Expert panel characterization

N	Name of the expert	Gender	Name of the respective organization	Current position in the organization
1	Anneli Kana	F	Metsanurme MTÜ	CEO
2	Anneli Ustav	F	FinestMedia AS	Information Security officer
3	Anu Oks	F	ESTBAN - Estonian Business Angels Association	Director
4	Maarjo Mändmaa	M	Hoolekandeteenused AS	CEO
5	Raivo Raestik	M	Enlife OÜ	Smart Home Solutions Director
6	René Randver	M	Republic of Estonia Ministry of Social Affairs	Counselor
7	Taivo Kangilaski	M	Eesti Energia	Business and Information Services, IT Architect
8	Fernando Ferreira	M	ISCTE Business School	Professor
9	Merilin Liutkevičius	F	Tallinn University of Technology	(Coordinator of the panel meetings)
10	Ingrid Pappel	F	Tallinn University of Technology	(Coordinator of the panel meetings)
11	Sidra Azmat Butt	F	Tallinn University of Technology	PhD student

Focus area

First panel meeting focus area was dedicated to the silver economy, elderly population (people aged 65 and over) and ICT services for seniors.

Identification and visualization of sources, location, flows and storage of knowledge within ICT services for seniors

Methodology used

First virtual panel meeting was around 2,5 hours long. The methodology used was nominal group technique to create a group cognitive map. The findings were after the meeting sent out to experts emails for them to carry through multi-voting to find out the most important criterias in every category. The first session was focusing on issues related to senior citizens in Estonia. More deeply it was dedicated to find out all factors concerning senior citizens:

1. Motives and benefits
2. Issues and limitations
3. Actors involved (in elderly people everyday life)
4. Knowledge-based resources, skills and competencies
5. Social and health-care, medicine and caregiving
6. Food and nutrition
7. Leisure and wellbeing
8. Finance
9. Mobility and transportation
10. Housing
11. Educational, professional and other activities.

To produce a collective cognitive map, the following trigger question together with baseline questions were introduced.

Trigger question

Based on your values and personal experience, how do you describe the “best” way to manage ICT services for elderly people?

This was the question which was the core of the whole panel meetings. All the participants were asked to answer based on their own knowledge and experience in their field.

Baseline Questions

How can ICT services contribute to the silver economy development?

What actions can encourage elderly adults to become more effectively involved in developing new services and products for them?

What are the conditions that may support availability and easy access to ICT services for elderly population?

What assistive technology can be provided to make society more inclusive of elderly population?

What hinders you/your organization from developing and sharing ICT services for elderly people?

What ICT services can be provided for the elderly?

What kind of resources, skills or competencies do you/your organization need to develop ICT services for elderly people?

What kinds of activities/initiatives senior citizens could accomplish to enhance ICT services?

What kinds of interventions/actions/initiatives does you/your organization prefer to foster ICT solutions for the aging population?

What motivates you/your organization to develop ICT services for seniors?

What would be the role for senior citizens and their organizations in the development of ICT services?

Where are ICT services located?

Who are the key players in the development of ICT services for the elderly?

Who creates and owns ICT services for elderly adults?

Panel Meeting 2

Place and Date of the Panel Meeting 2

- Virtual session conducted via secure ZOOM channel
- 05.10.2020 10:00-12:00

Expert panel characterization

N	Name of the expert	Gender	Name of the respective organization	Current position in the organization
1	Anneli Kana	F	Metsanurme MTÜ	CEO
2	Anneli Ustav	F	FinestMedia AS	Information Security officer
3	Anu Oks	F	ESTBAN - Estonian Business Angels Association	Director
4	Raivo Raestik	M	Enlife OÜ	Smart Home Solutions Director
5	René Randver	M	Republic of Estonia Ministry of Social Affairs	Counselor
6	Taivo Kangilaski	M	Eesti Energia	Business and Information Services, IT Architect
7	Fernando Ferreira	M	ISCTE Business School	Professor
8	Merilin Liutkevičius	F	Tallinn University of Technology	(Coordinator of the panel meetings)
9	Ingrid Pappel	F	Tallinn University of Technology	(Coordinator of the panel meetings)
10	Sidra Azmat Butt	F	Tallinn University of Technology	PhD Student

Focus area

Goal was to increase understanding of the active role of senior citizens/end-users in the flow of knowledge/ knowledge transfer within Estonian RIS3 priorities.

Methodology used

The panel meeting was held with the same experts except for one expert who was not able to participate as the regulations on ZOOM access were changed and for security reasons he was not able to log into the meeting.

Methodology used in the second panel meeting was nominal group technique together with multi-voting. As in the previous session the results in this panel meeting were validated using DEMATEL. Within the panel meeting we were focusing on the issues related to: what resources senior citizens can offer to the organizations to enhance knowledge sharing and knowledge management in an open innovation ecosystem; what would be the role for senior citizens and their organizations in an open innovation ecosystem; what kinds of activities/ tasks senior citizens could accomplish to enhance knowledge management in an open innovation ecosystem; what intervention strategies our experts recommend for a deeper and effective participation of senior citizens in an open innovation ecosystem and what practical initiatives experts would recommend to increase the participatory role of senior citizens.

Each expert had time to think over the questions and give his/her answers by writing them directly or have a group discussion over them. Then we collected all the answers and added them to the excel sheets to later conduct DEMATEL influence-scoring on each element. Decision making trial and evaluation laboratory (DEMATEL) is considered as an effective method for the identification of cause-effect chain components of a complex system. It deals with evaluating interdependent relationships among factors and finding the critical ones through a visual structural model.

To deal with complex problems, structuring them through graphical representations and analyzing causal influences can aid in illuminating complex issues, systems, or concepts. The DEMATEL method is a methodology which can be used for researching and solving complicated and intertwined problem groups. The end product of the DEMATEL process is a visual representation—the impact-relations map—by which respondents organize their own actions in the world. The applicability of the DEMATEL method is widespread, ranging from analyzing world problematique decision making to industrial planning. The most important property of the DEMATEL method used in the multi-criteria decision making (MCDM) field is to construct interrelations between criteria. In order to obtain a suitable impact-relations map, an appropriate threshold value is needed to obtain adequate information for further analysis and decision-making.

This was also carried out as in the first panel meeting- excel sheets were sent out to experts to give their answers on each table and after all the answers were together, PhD Fernando Ferreira

Trigger question

Based on your values and personal experience, in what ways senior citizens/end-users can enhance knowledge sharing/transfer/management within an open innovation ecosystem?

Results of Panel Meetings 1 & 2

Knowledge structure/Group cognitive and DEMATEL Impact-relation maps created

After the first and second panel meeting, when all the answers had been collected to one file it was possible to create a cognitive map of results. Within the first panel meeting + individually collected answers we got 267 different criterias to create a Knowledge Management Map (figure 1).

A questionnaire was sent out to conduct a multi-voting criteria to find out which 5 elements of each category were the most important in experts' opinion. This methodology was used after both panel meetings.

After the multi-voting was done it was time to analyze the results and when 5 most important criteria in every category were found out it was time to send out a DEMATEL influence-scoring table to find out which elements and how big/small influence they have on each-other. DEMATEL diagrams were produced and are showing the cause-and-effect relationships among the variables included in the model which will allow visualization of the variables' behaviour (figure 2, figure 3 and figure 4)

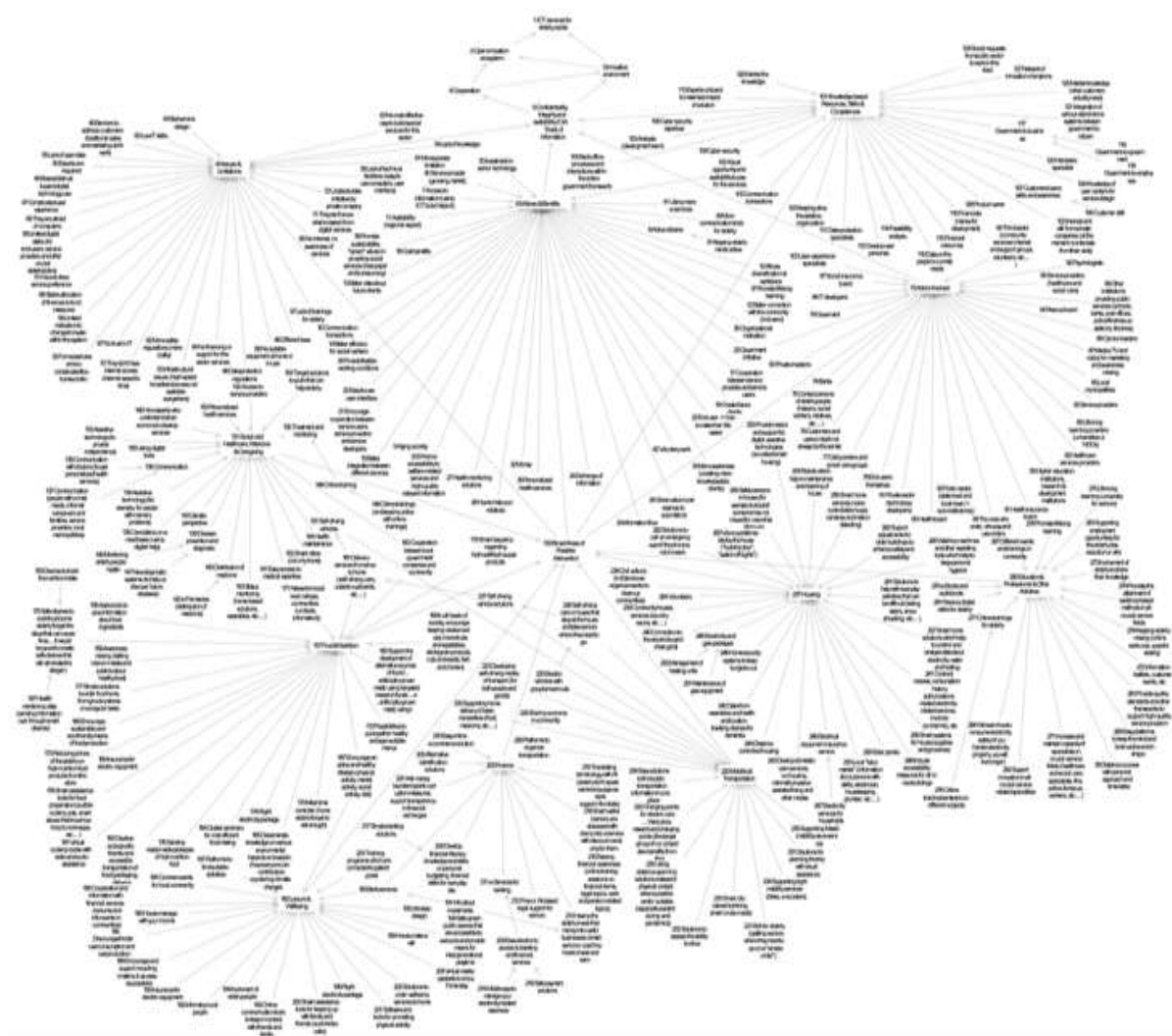


Figure 1 Collective cognitive map

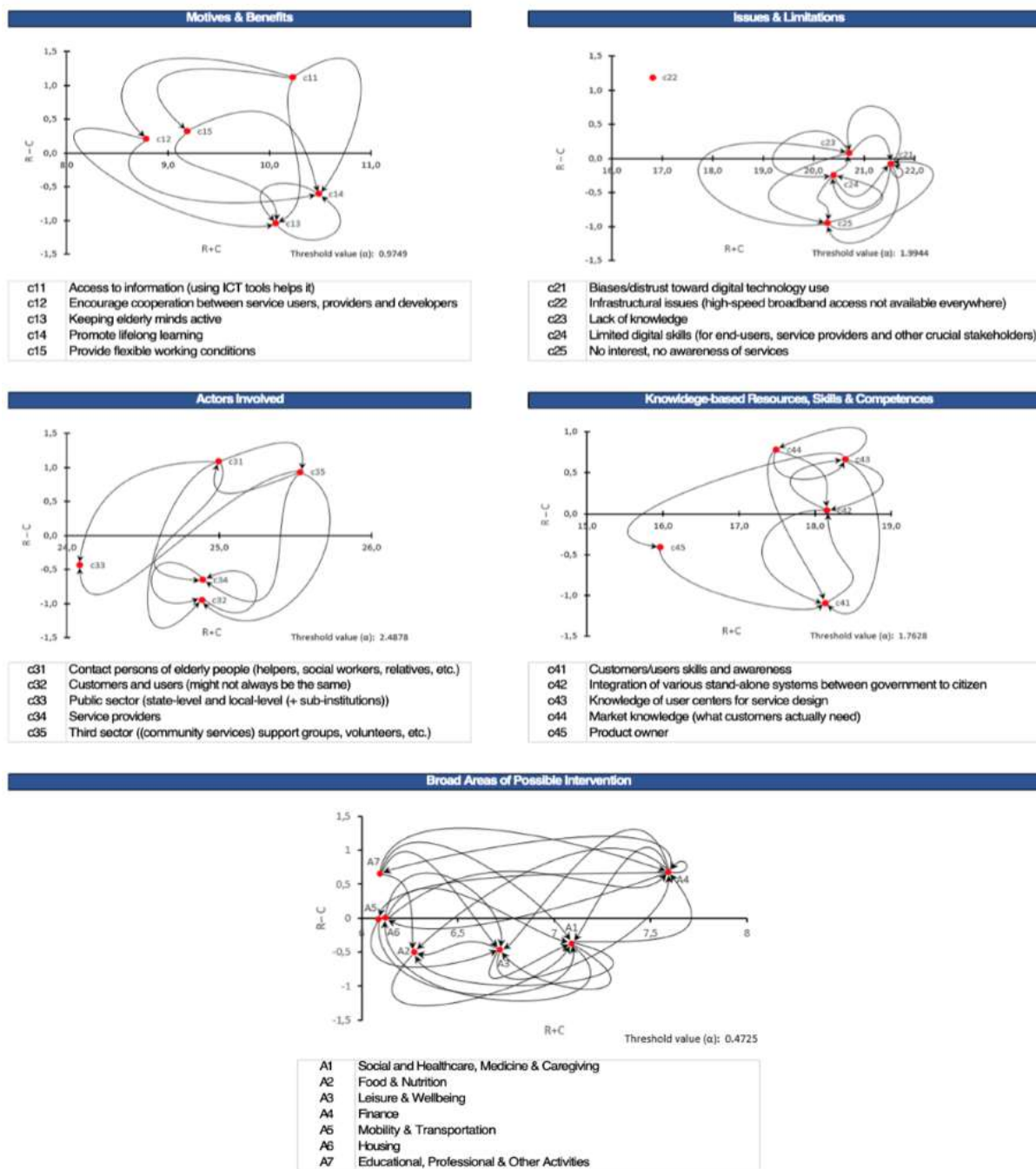
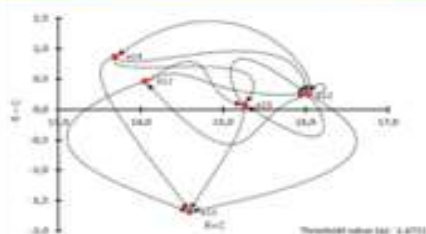


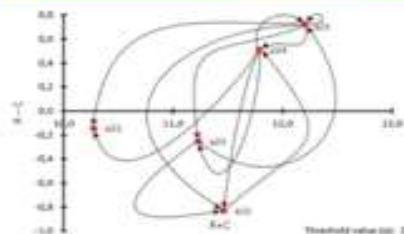
Figure 2 DEMATEL Impact-relation maps

Social and Healthcare, Medicine & Caregiving



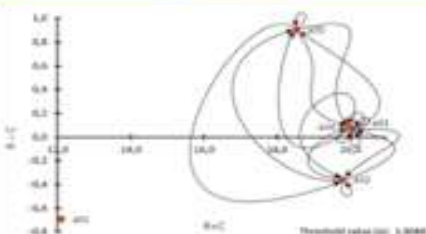
- a11 Access to service providers
- a12 Assistive technology (to provide independence)
- a13 Monitoring elderly people health
- a14 Online trainings (and keeping active with online trainings)
- a15 Status monitoring (home-based solutions, wearables, etc.)

Food & Nutrition



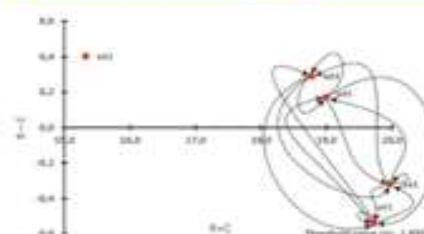
- a21 Delivery services from shop to home (self-driving cars, outside cupboards, etc.)
- a22 Health monitoring data (sending information over through smart devices)
- a23 Meal time reminder (...)
- a24 Simple solutions to order food home from grocery stores on a regular basis
- a25 Smart assistance tools for food preparation (audible cooking pots, etc.)

Leisure & Wellbeing



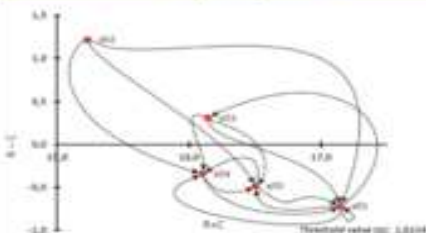
- a31 Bank services
- a32 Common events for local community
- a33 Encourage active and healthy lifestyle (physical, mental (...)) activity, diet
- a34 Involvement of elderly people
- a35 Online communication tools to keep in contact with friends and family

Finance



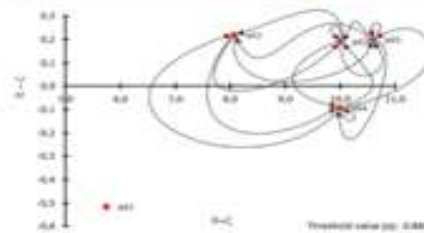
- a41 Develop financial literacy: knowledge and skills on personal budgeting (...)
- a42 Free or AI-based legal support for seniors
- a43 Raising financial awareness (online training sessions on financial terms, (...))
- a44 Safe payment solutions
- a45 Simple banking solutions

Mobility & Transportation



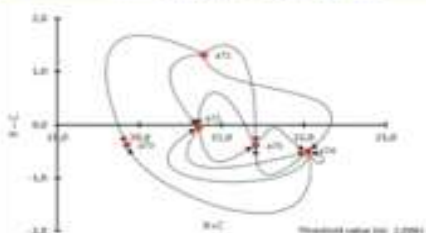
- a51 Bolt for elderly (getting seniors where they need to go on a "simple order")
- a52 Self-driving vehicle solutions
- a53 Sharing economy in community
- a54 Supporting home delivery of basic necessities (food, medicine, etc.)
- a55 Supporting MaaS (mobility-as-a-service)

Housing



- a61 Community houses services (laundry, sauna, etc.)
- a62 Data from wearables and health and location-tracking devices for dementia
- a63 Distance-controlled housing
- a64 Robots which help in maintenance and cleaning of house
- a65 Smart home solutions (...) to control-analyze data about electricity, water and heating

Educational, Professional & Other Activities

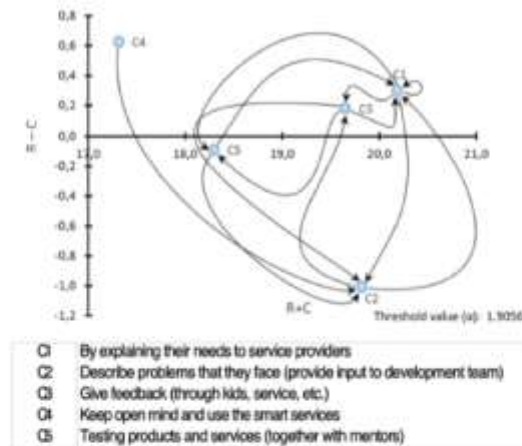


- a71 Different events and trainings in community
- a72 Easy platforms to keep the mind and brain active and in shape
- a73 Involvement of elderly to share their knowledge
- a74 Promote lifelong learning
- a75 Raising digital skills for elderly

Figure 3 DEMATEL Impact-relation maps

Based on your personal experience, in what ways senior citizens can enhance knowledge sharing/transfer/management within an open innovation ecosystem?

Senior Citizens' Role



From your perspective, how could the Smart Silver Hub platform enhance knowledge sharing/transfer/management within an open innovation ecosystem?

Smart Silver Hub Platform

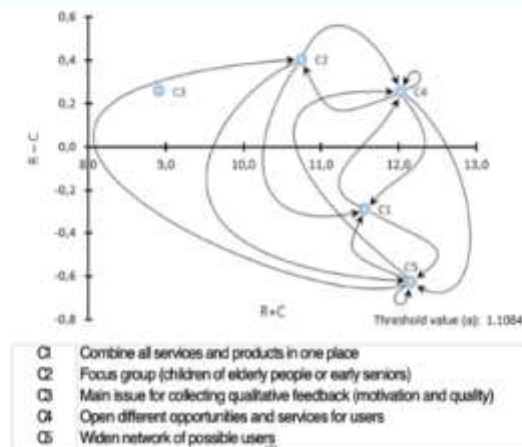


Figure 4 DEMATEL impact-relation maps

Summary of Findings

Based on the findings in Figure 2

First cluster: Motives and benefits - 1. Criteria c11,c12 and c15 are causes in the Motives & benefits cluster [because they are above the R-C line]

2. Criteria c13 and c14 are effects/consequences in the Motives & Benefits cluster [because they are below the R-C line].

3. Criteria c14 (promoting lifelong learning) is the most important one [because it is located in the far right side of the R+C axis].

4. Criteria c12 (encouraging cooperation between service users, providers and developers) is the least important one [because it is located in the far left side of the R+C axis].

Second cluster: Issues and limitations

12. Criteria c22 (infrastructural issues) and c23(lack of knowledge) are causes.

13. c21 biases/distrust toward digital technology) , c24 (limited digital skills), c25 (no interest, no awareness of services) are effects/consequences in this cluster.

14. Criteria c21 (biases/distrust toward digital technology use) is the most important in this cluster.

15. Criteria c22 is the least important one

Third cluster: Actors involved

16. Criterias c1(contact persons of elderly people (helpers, social workers, relatives etc.) and c35 (third sector (community services) support groups, volunteers, etc.) are causes in this cluster

17. Criterias c32 (customers and users (might not always be the same), c33 (public sector (state-level and local-level (+sub-institutions)) and c34 (service providers) are effects/consequences in this cluster

18. Criteria c35 is the most important one in this cluster

19. Criteria c33 is least important one in this cluster

Fourth cluster: Knowledge-based Resources, Skills and Competences

20. Criterias c42 (integration of various stand-alone systems between government to citizen), c43 (knowledge of user centers for service design) and c44 (market knowledge (what customers actually need)) are causes in this cluster

21. Criterias c41 (customers/ users skills and awareness, c45 (product owner) are effects/consequences in this cluster

22. Criteria c43 is the most important one in this cluster

23. Criteria c45 is least important one in this cluster

Fifth cluster: Broad areas of possible intervention

24. Criterias A4, A6 and A7 are causes in this cluster

25. Criterias A1, A2, A3, A5 are effects/consequences in this cluster

26. The most important criteria in this cluster is A4 (financing)

27. The least important criteria in this cluster is A5 (mobility and transportation)

Figure 3

First cluster: Social and Healthcare, Medicine & Caregiving

28. Criterias a11, a12, a14 and a15 are causes in this cluster

29. Criteria a13 is effect/consequence in this cluster

30. The most important criteria in this cluster is a12 (assistive technology (to provide independence)

31. The least important criteria in this cluster is a14 (online trainings (and keeping active with online trainings)

Second cluster: Food and Nutrition

32. Criterias a23 and a24 are causes in this cluster

33. Criterias a21, a22, a25 are effects/consequences in this cluster

34. The most important criteria in this cluster is a23 (meal time reminder)

35. The least important criteria in this cluster is a22 (health monitoring data (sending information over through smart devices)

Third cluster: Leisure and Wellbeing

- 36. Criterias a33, a34 and a35 are causes in this cluster
- 37. Criterias a31 and a32 are effects/consequences in this cluster
- 38. The most important criteria in this cluster is a33 (encourage active and healthy lifestyle (physical, mental (...) activity, diet)
- 39. The least important criteria in this cluster is a31 (bank services)

Fourth cluster: Finance

- 40. Criterias a42, a44 and a45 are causes in this cluster
- 41. Criterias a41 and a43 are effects/consequences in this cluster
- 42. The most important criteria in this cluster is a43 (raising financial awareness (online training sessions on financial terms, (...))
- 43. The least important criteria in this cluster is a42 (free or AI-based legal support for seniors)

Fifth cluster: Mobility and transportation

- 44. Criterias a52 and a53 are causes in this cluster
- 45. Criterias a51, a54 and a55 are effects/consequences in this cluster
- 46. The most important criteria in this cluster is a51 (bolt for elderly (getting seniors where they need to go on a "simple order")
- 47. The least important criteria in this cluster is a52 (self driving vehicle solutions)

Sixth cluster: Housing

- 48. Criterias a62, a63 and a65 are causes in this cluster
- 49. Criterias a61 and a64 are effects/consequences in this cluster
- 50. The most important criteria in this cluster is a65 (smart home solutions (...) to control-analyze data about electricity, water and heating)
- 51. The least important criteria in this cluster is a61 (community house services (laundry, sauna, etc..))

Seventh cluster: Educational, Professional & Other activities

- 52. Criterias a71 and a72 are causes in this cluster
- 53. Criterias a73, a74 and a75 are effects/consequences in this cluster
- 54. The most important criteria in this cluster is a74 (promote lifelong learning)
- 55. The least important criteria in this cluster is a73 (involvement of elderly to share their knowledge)

Figure 4

Cluster: Senior citizen's role enhancing knowledge sharing/transfer/management within an open innovation ecosystem

- 56. Criterias C1, C3 and C4 are causes in this cluster
- 57. Criterias C2 and C5 are effects/consequences in this cluster
- 58. The most important criteria in this cluster is C1 (by explaining their needs to service provider)
- 59. The least important criteria in this cluster is C4 (keep open mind and use the smart devices)

Cluster: Smart Silver Hub platform (how could the SSH platform enhance knowledge sharing/transfer/management within an open innovation ecosystem)

- 60. Criterias C2, C3 and C4 are causes in this cluster
- 61. Criterias C1 and C5 are effects/consequences in this cluster
- 62. The most important criteria in this cluster is C5 (widen network of possible users)
- 63. The least important criteria in this cluster is C3 (main issue for collecting qualitative feedback (motivation and quality)